Finish ch. 2 September 4th

Thursday: Problem club w/ Kendall 7:30-9:00 Eppley 111

Friday: Review (you bring questions)

↳ checklist on-line for CK1

↳ Nomenclature Quiz: 10:15-10:45

Monday: CK1 doors open @ 9:15

CM Carbon Disulfide → CS_2

I Calcium peroxide (Ca^{2+}, O_2^{2-}) → CaO_2

CM xenon tetrafluoride → XeF_4

I potassium chromate (K^+, CrO_4^{2-}) → K_2CrO_4

I strontium acetate (Sr^{2+}, $C_2H_3O_2^-$) → $Sr(C_2H_3O_2)_2$

(TM) I chromium (VI) phosphide (Cr^{6+}, P^{-3}) → CrP_2

(TM) I $Fe(HSO_3)_2$ → Iron (II) bisulfite (Fe^{2+}, HSO_3^-)

CM AsF_3 → arsenic trifluoride

CM $SiSe_2$ → silicon diselenide

I $Ca(ClO_3)_2$ → calcium chlorate (Ca^{2+})

I NaIO → Sodium Hypoiodite

(TM) I $Co(CN)_2$ → Cobalt (II) cyanide (Co^{2+}, CN^-)

CM N_2O_5 → dinitrogen pentoxide

Iron (II) sulfate $FeSO_4$

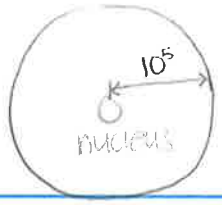
Fe^{2+} SO_4^{2-}

"soluble iron"

Iron (III) sulfate $Fe_2(SO_4)_3$

Fe^{3+} SO_4^{2-}

"insoluble iron"



electrons
charge = -1
mass = 1/1800 * mproton or neutron

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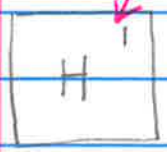
Atom → nucleus
very small
with most of
the atom's mass

*protons mass = 1 charge = +1
*neutrons mass = 1 (rad heavier) charge = 0

atomic number, Z



$_{1}H$ $_{17}Cl$ $_{35}Br$ $_{2}He$ $_{8}S$

Z = # of protons (makes each element unique)

*elements in periodic table are ALL neutral!

$_{17}Cl$	$_{17}Cl^-$	$_{8}S^{2-}$	$_{11}Na$	$_{11}Na^+$
17p	17p	8p	11p	11p
17e⁻	18e⁻	10e⁻	11e⁻	10e⁻

mass number = # protons + # of neutrons

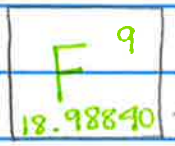
isotopes of carbon (diff. style of element w/ diff. # of neutrons)

$^{12}_{6}C$ ↳ 6 protons & 6 neutrons

$^{13}_{6}C$ ↳ 6 protons & 7 neutrons

$^{14}_{6}C$ ↳ 6 protons & 8 neutrons

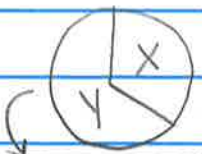
→ *CAN round when there's 1 isotope!

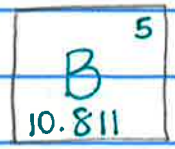


atomic mass

$^{19}_{9}F$

9 protons
10 neutrons





*2 isotopes

exact mass:
$^{10}_{5}B$ 10.0129

exact mass:
$^{11}_{5}B$ 11.0093

X + Y = 1

↳ X = 1 - Y

* weighted avg. → $10.811 = 10.0129 * X + 11.0093 * Y$

abundances*

$10.811 = 10.0129 * (1 - Y) + 11.0093 * Y$

$10.811 = 10.0129 - 10.0129Y + 11.0093Y$

0.7981 = 0.9964Y

Y = 0.80 → 0.8010

X = 0.20 → 0.1990

B 5
10.811

1 mol B has a mass of 10.811 g

$AM_B = 10.811\ g/mol$ (atomic mass)

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→ avogadro's #: $N_A = 6.022 \times 10^{23}$

↳ $\frac{6.022 \times 10^{23}\ things}{1\ mol\ of\ those\ things}$ → ex: Boron | $\frac{6.022 \times 10^{23}\ B\ atoms}{1\ mol\ B\ atoms}$ |

How many moles of mercury are in 507g of Mercury (Hg)?

Hg 80
200.59

$mol\ (n) = \frac{507\ g\ Hg}{} \left| \frac{1\ mol\ Hg}{200.59\ g\ Hg} \right. = \boxed{2.53\ mol\ Hg}$

How many mercury atoms are in this sample?

$n = \frac{2.53\ mol}{} \left| \frac{6.022 \times 10^{23}\ atoms}{1\ mol} \right. = \boxed{1.52 \times 10^{24}\ atoms\ Hg}$