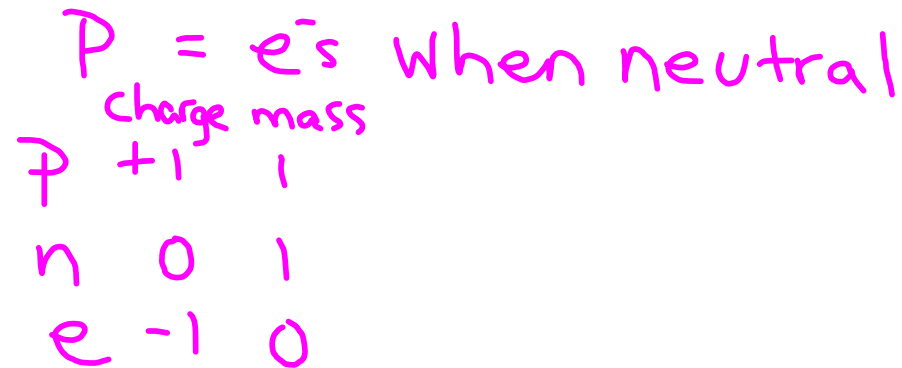
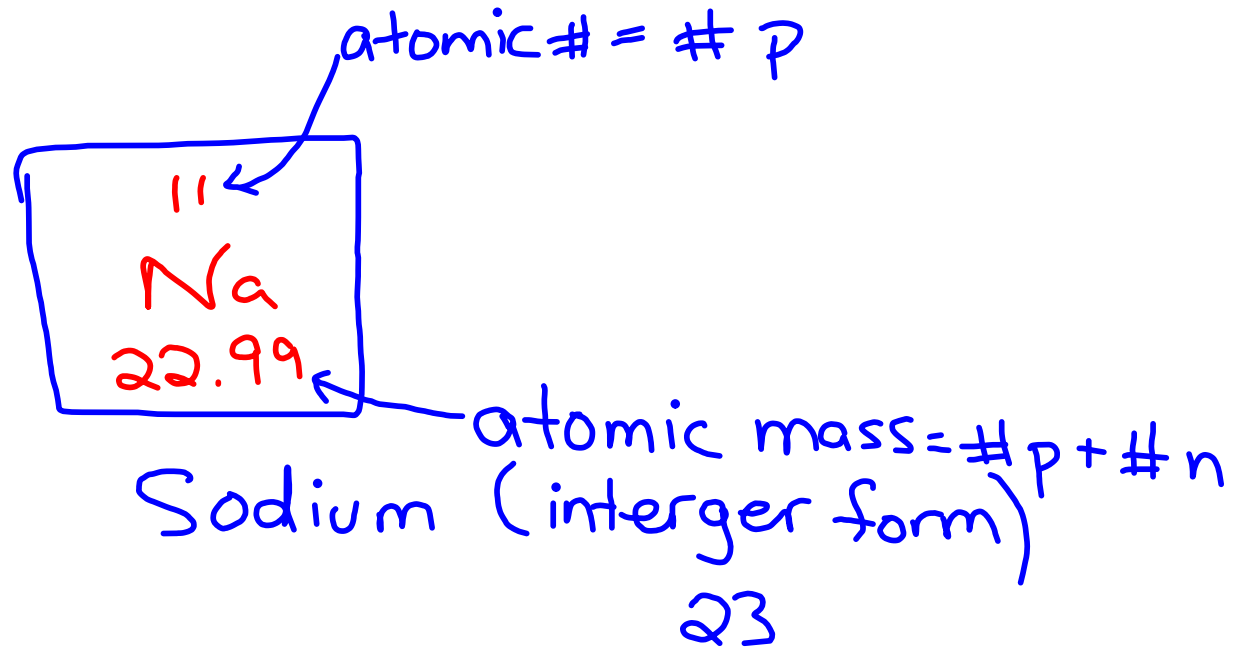




1. 2800 cal $2.8 \times 10^3 \text{ cal}$

2 $3.34 \times 10^3 \text{ cal}$

3340 cal

11 ← atomic # = #p

Na

22.99 ← atomic mass = #p + #n
integer

11

Na

23

23

11 Na

atomic mass

- atomic #

#n

Charge

mass

p

+1

1

e

-1

0

n

0

1

e's in a neutral Na
is 11.

H	hydrogen
He	helium
Li	Lithium
Be	Beryllium
B	Boron
C	Carbon
N	Nitrogen
O	Oxygen
F	fluorine
Ne	Neon

Na	sodium
Mg	magnesium
Al	aluminum
Si	silicon
P	phosphorus
S	sulfur
Cl	chlorine
Ar	Argon

K Potassium
Ca Calcium
Ti titanium
V vanadium
Cr chromium
Mn Manganese
Fe Iron
Co Cobalt
Ni Nickel
Cu Copper
Zn Zinc
Ga Gallium
Ge Germanium
As Arsenic
Br Bromine
Kr Krypton

Rb Radium

Sr Strontium

Y Yttrium

Pd Palladium

Ag Silver

Sn Tin

Sb Antimony

I Iodine

Xe Xenon

Cs Cesium

Ba Barium

W Tungsten

Os Osmium

Pt Platinum

Au Gold

(2) Hg Mercury

Br Pb lead

Bi Bismuth

Po Polonium

At Astatine

Rn Radon

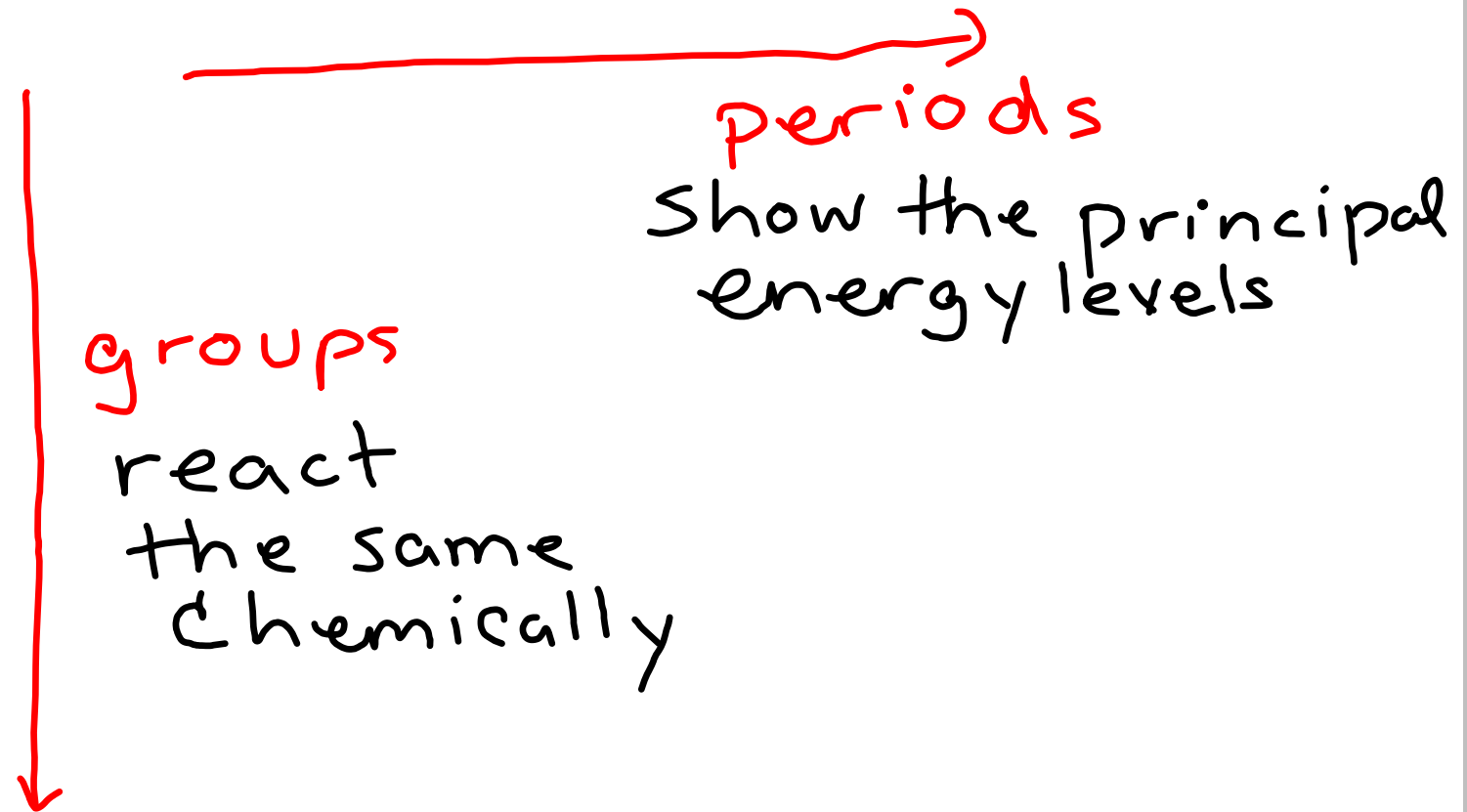
Fr Francium

Ra Radium

Th Thorium

U Uranium

Am Americium



A diagram illustrating periodic trends. A horizontal red arrow points to the right, labeled "periods" in red. A vertical red arrow points downwards, labeled "groups" in red. The text "react the same chemically" is written in black next to the vertical arrow. The text "Show the principal energy levels" is written in black next to the horizontal arrow.

periods

Show the principal energy levels

groups

react the same chemically

$+1$ $+2$
 $1A$ $2A$
 $1e^-$ $2e^-s$

$+3$ $+4$ -3 -2 -1 0
 $3A$ $4A$ $5A$ $6A$ $7A$ $8A$
 $3e^-s$ $4e^-s$ $5e^-$ 6 7 $8e^-$

e^- e^- e^- e^- He $2e^-s$
 e^- e^- e^- e^-

1A alkali metals
2A alkaline earth metals
3A Boron group
4A Carbon group
5A Nitrogen group
6A Oxygen group
7A Halogens
8A Noble gases
Ar, Kr, Xe react

3- 11 Transition metals
58 - 71 Lanthanide series
rare earth metals
90 - 103 Actinide series

Valance e^- s are the
 e^- s in the outer shell.

k. ^{42}Mo

m.

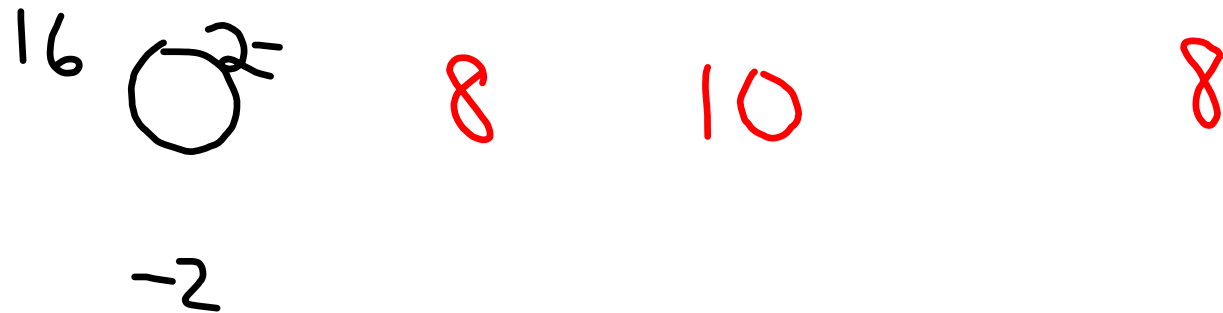
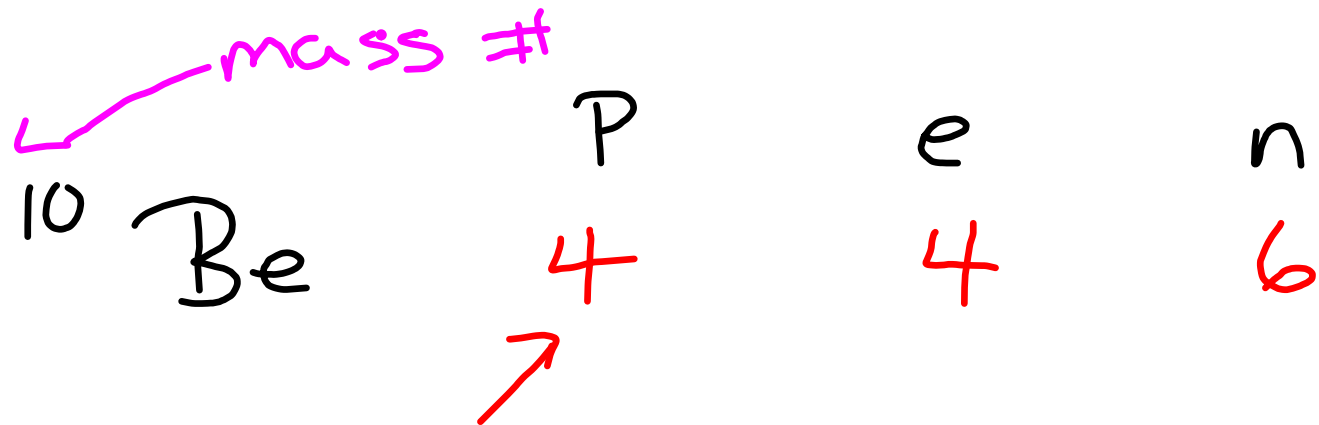
$10\text{e}^- + 2$

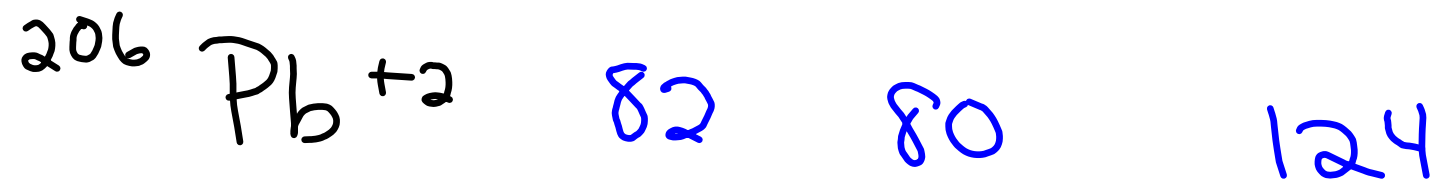
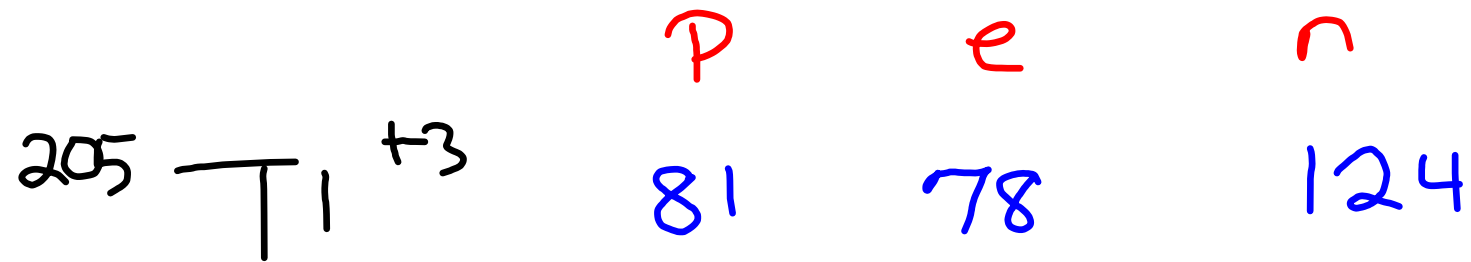
Mg

12e^-

Transition metals

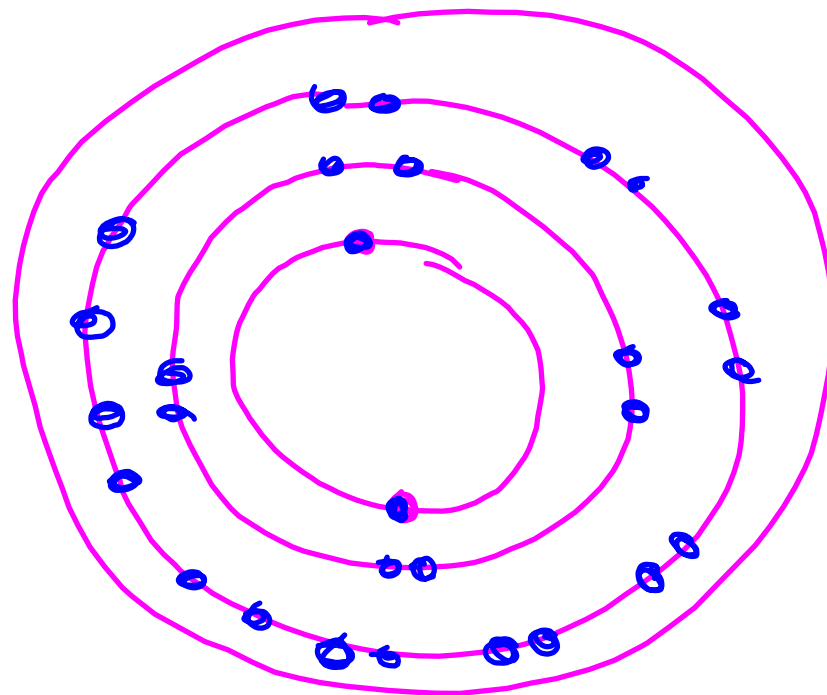
3 — 11





Same element but different masses are known as isotopes

Bohr



$n=4$
32e⁻s

$$2n^2$$

$$2(2)^2$$

$$2(4)=8$$

$$2(3)^2=$$

$$2(9)=18$$

S block

Li Be

Na Mg

K Ca

: :

.

.

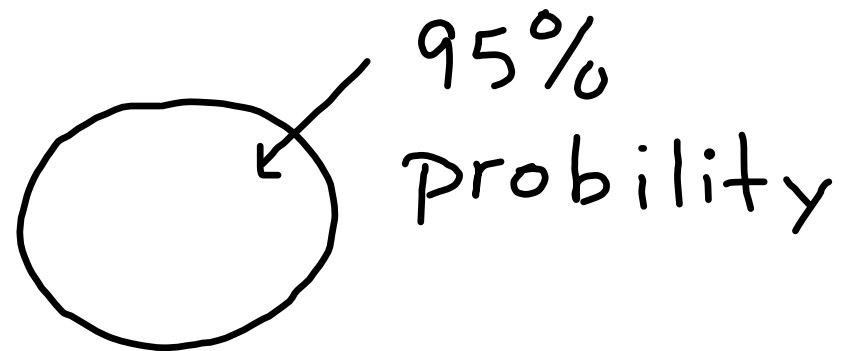
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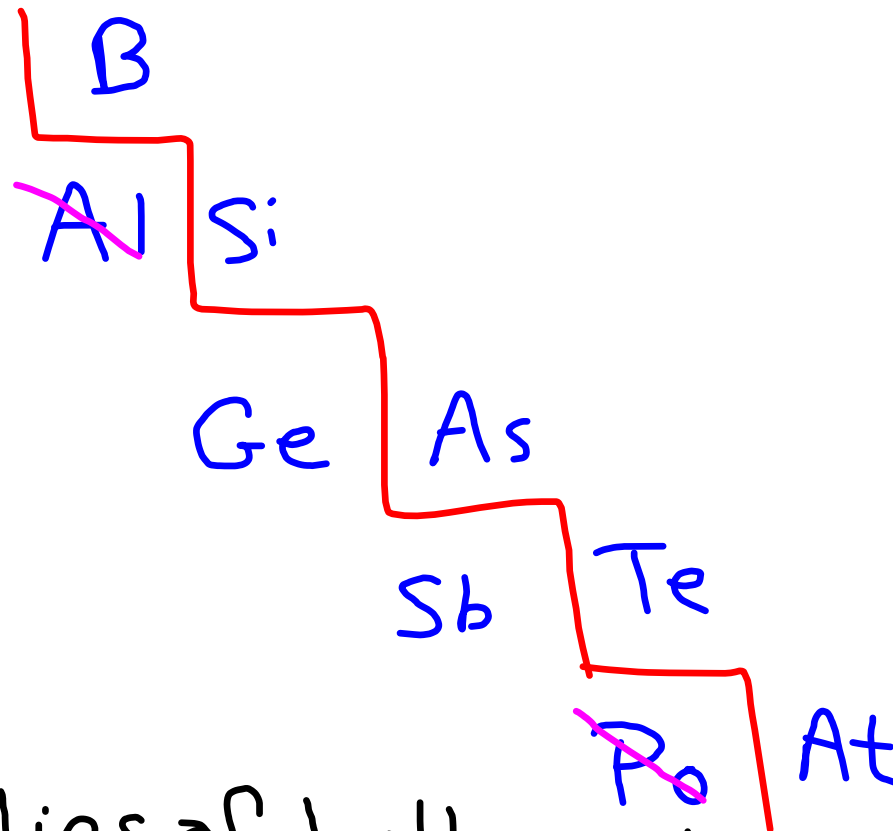
metals

- most of them are solid.
- shiny
- conductor of heat and electricity
- malleable
- ductile
- + charge
- left side

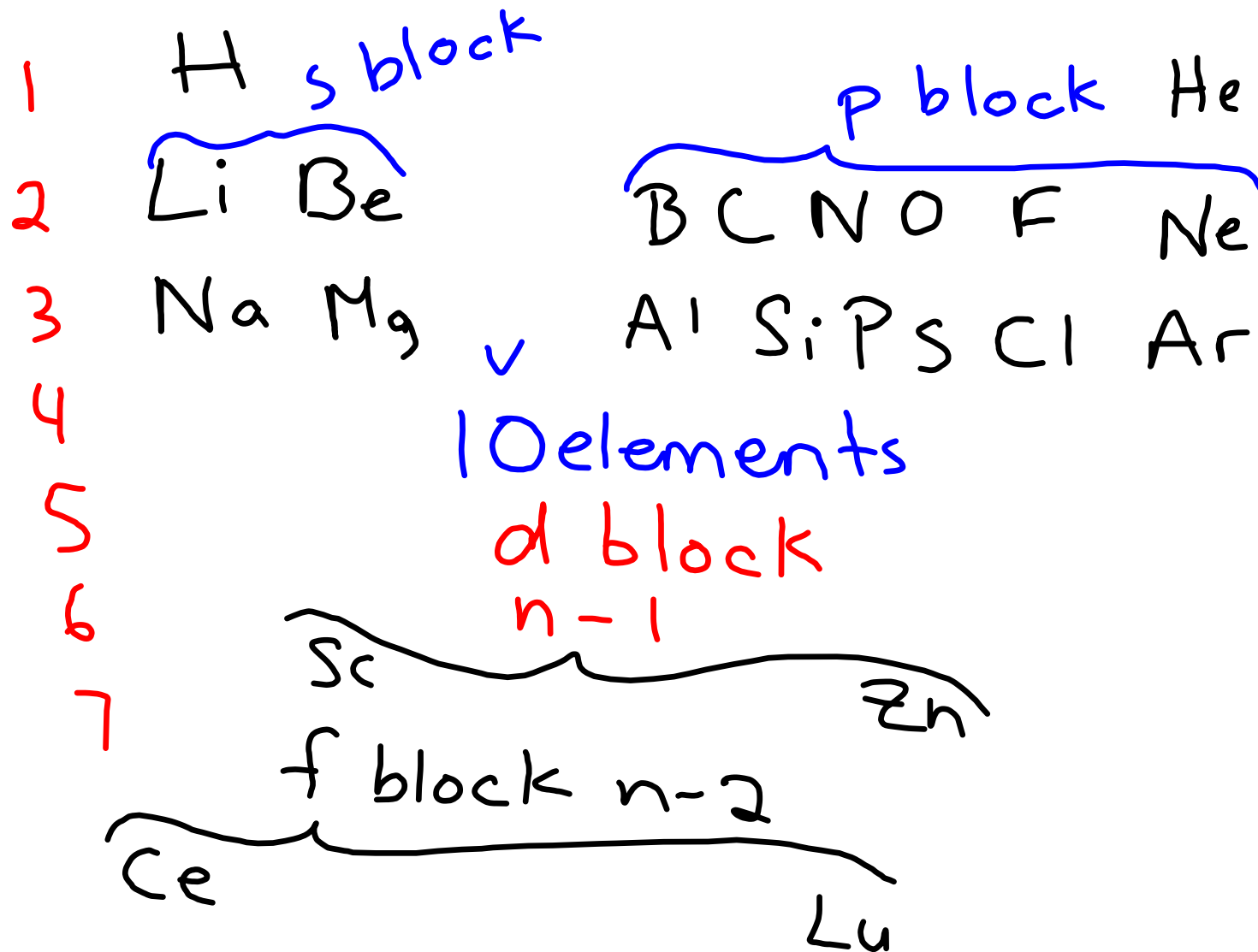
non metals

- (s)(l)(g)
- dull
- poor conductors of heat and electricity
- brittle
- most have - charges
- right side

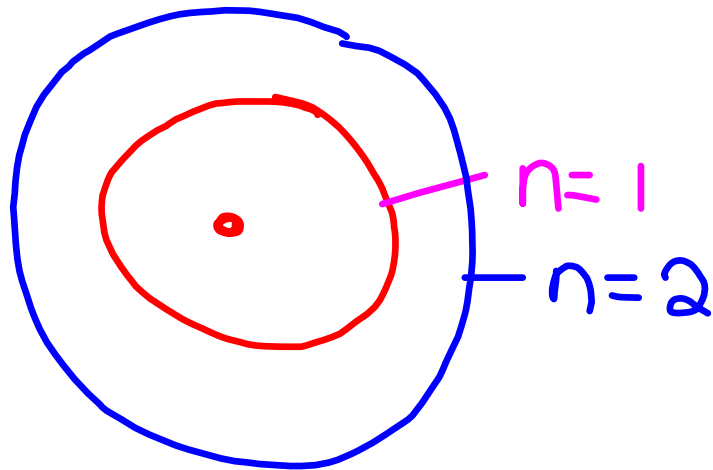
metalloid semi metals

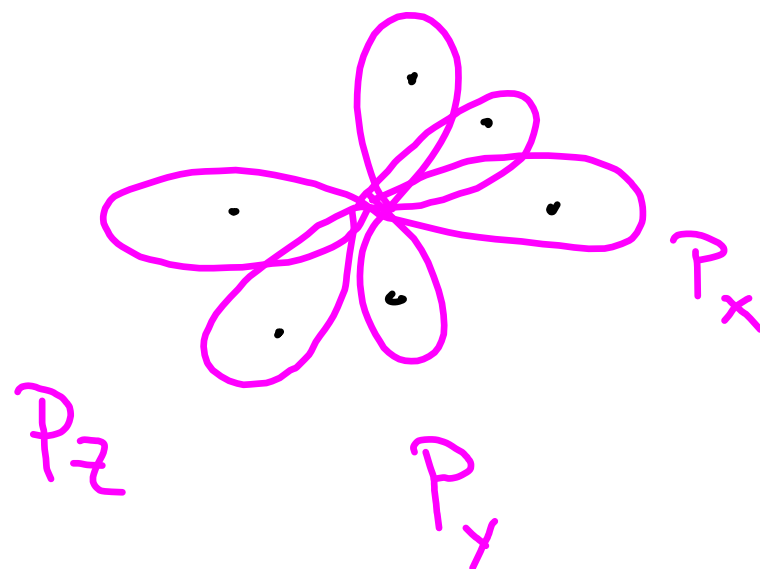


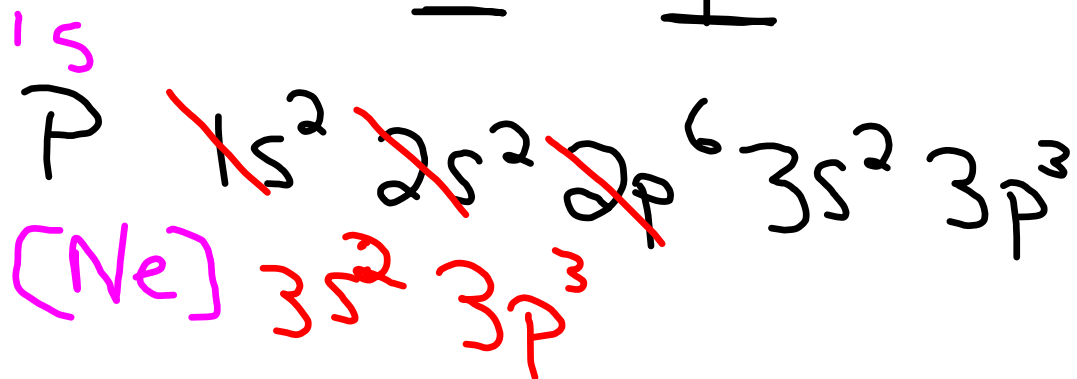
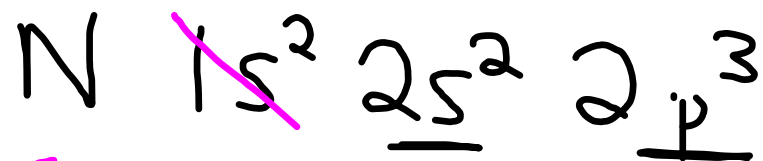
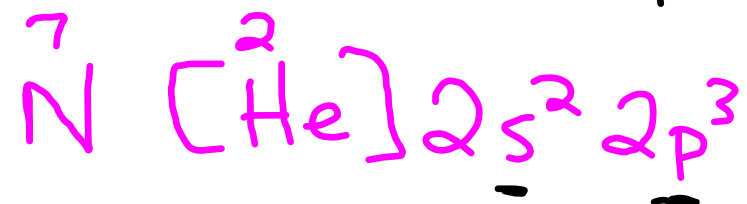
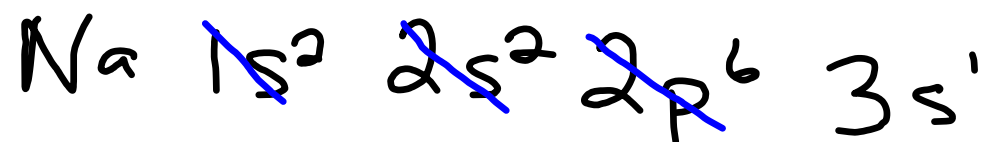
properties of both metals
and nonmetals

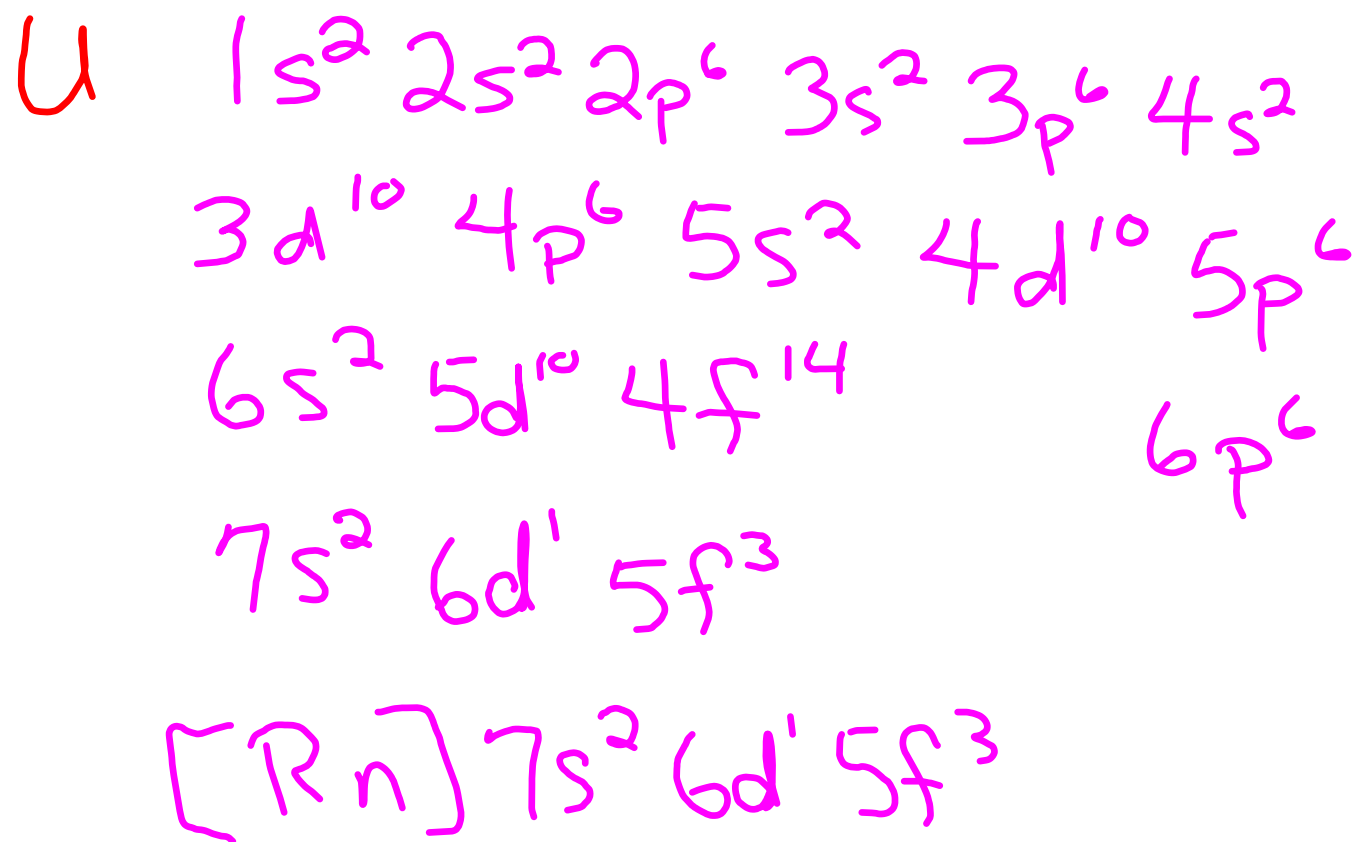


5 blocks









Ca $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$

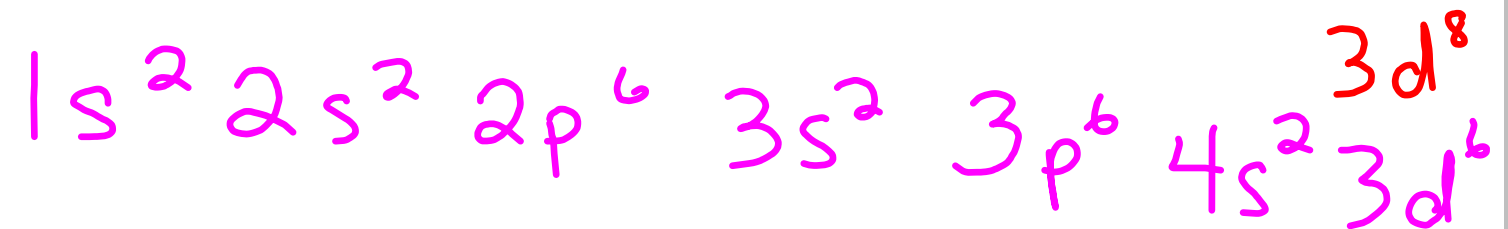
Fe $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
 $3d^6$

Y $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
 $3d^{10} 4p^6 5s^2 4d^1$

Quiz Monday

① Electron Conf.

② # 4

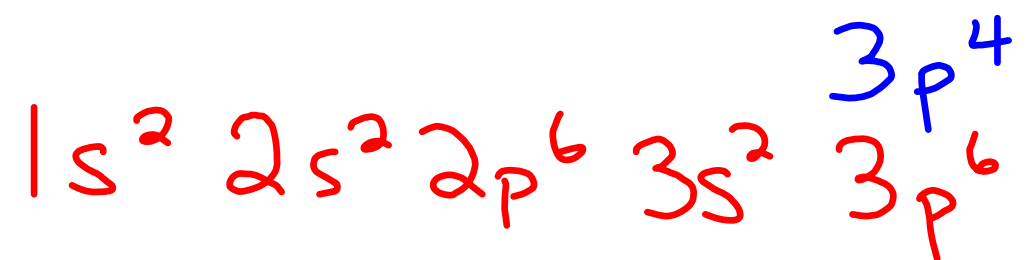


$$10 + 10 + 6 = 26$$

$$10 + 10 + 8 = 28$$

Fe

Ni



Cl 35.453

	%	Mass
Cl	75.53	34.96885
Cl	24.47	36.9658
	(.7553)	(34.96885)
	(.2447)	(36.9658)

26.41197241
9.04553126

35.45750367

35.46 amu org

amu = atomic mass unit