

Parts of the atom

electron  
mass = 0  
charge = -1

electron cloud



proton  
mass = 1  
charge = +1

nucleus

neutron  
mass = 1  
charge = 0

Symbol	At. #	At. mass	# p <sup>+</sup>	# n	# e <sup>-</sup>
$^{17}_8\text{O}$	8	17	8	9	8
$^{40}_{20}\text{Ca}$	20	40	20	20	20
$^{78}_{34}\text{Se}^{2-}$	34	78	34	44	36

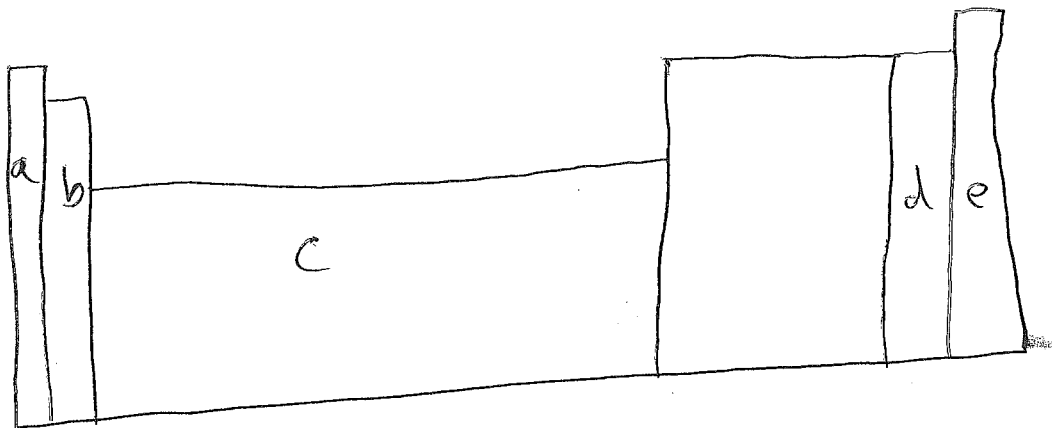
2-

Old Guys

Thomson  
e<sup>-</sup>'s

Rutherford  
nucleus

Dalton  
↓  
atomic  
theory



name each letter and give some properties of each group

a - alkali

b - alkaline-earth

c - transition

d - halogens

e - noble gases

Give the properties of metals, nonmetals, and metalloids

metallic luster  
Good conductors  
malleable/ductile

Brittle  
Poor  
dull

↓  
properties  
of both

How does light travel?



how are  $\nu$  and  $\lambda$  related? Inversely

$\nu \uparrow \lambda \downarrow$

what are some types of E. R.?

radio micro infra visible uv x gamma

what is the ground state? lowest possible E state

what is the excited state?

Any state higher than ground

how is energy released when an e<sup>-</sup> returns to the ground state?

in the form of light

list the colors of the rainbow in order of decreasing energy

VIBGYOR

what are valence  $e^-$ 's?

$e^-$ 's in outermost E level

what are they used for?

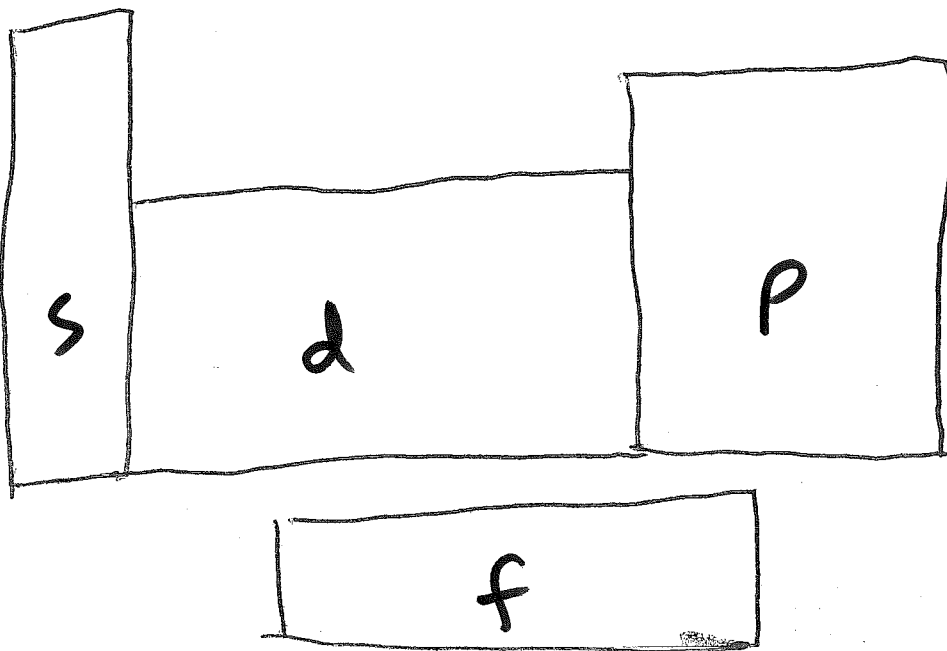
bonding + charges

How many valence  $e^-$  do atoms want to have?

8

Group #	1	2	13	14	15	16	17	18
# valence $e^-$	1	2	3	4	5	6	7	8
charge as ion	+1	+2	+3	$\pm 4$	-3	-2	-1	0

Areas of Periodic Table s, p, d, f



fill in the following table

sublevel	# of orbitals	max # of e <sup>-</sup>
s	1	2
p	3	6
d	5	10
f	7	14

gives examples of

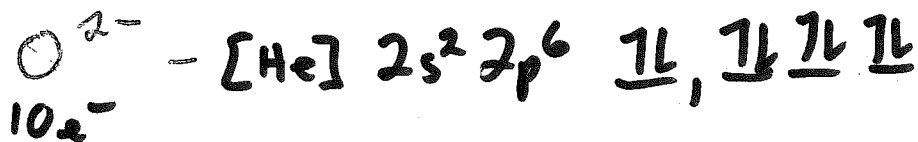
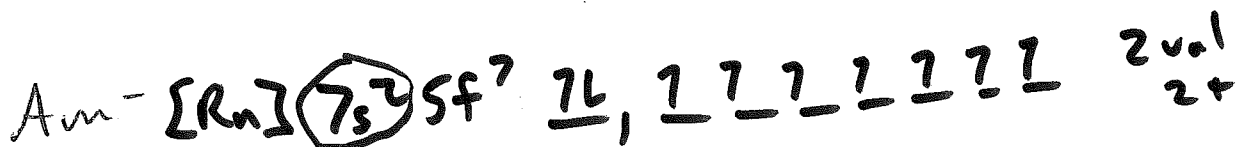
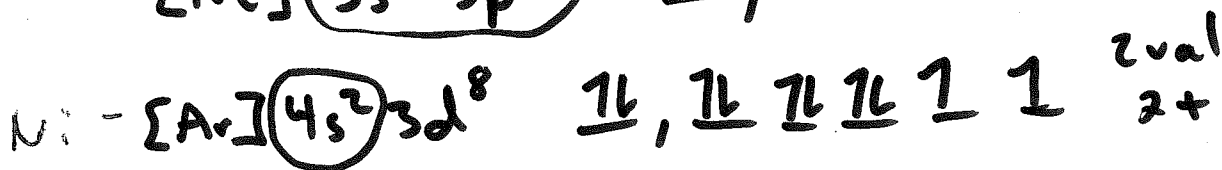
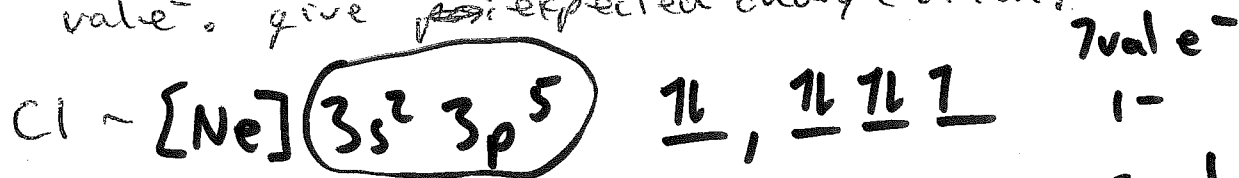
a) Pauli's exclusion principle



b) Hund's Rule



write electron configurations + orbital diagrams. circle val e<sup>-</sup>. give expected charge of ion.



8+2