

Electron Configuration

Valance electrons	Number of electrons in outermost shell.
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shell -> subshells -> orbitals

shell	K, L, M, N	n=1, 2, ...
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subshell	s, p, d, f, g	1s, 2s, 2p, 3s, ...
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orbital	s, p _x , p _y , p _z	1s, 2s, 2p _x , 2p _y , 2p _z
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Element is classified as s, p, d and f block depending on the orbital filled by the last electron.

Quantitative Reasoning

Mole (Avagadro's constant)	It is a unit for telling the count, just like dozen.	1 mole = 6.02 x 10 ²³ units
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Standard Temperature and Pressure (STP)

Avagadro's Hypothesis	Volume occupied by 1 mole of ideal gas at STP is 22.41 litres
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Mass of neutron	1.0087 u
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Mass of proton	1.0073 u
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Mass of electron	0.00055 u
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Periodic Table Groups

Group 1	Alkali Metals	Valency +1	-ium
Group 2	Alkali Earth Metals	Valency +2	-ium
Group 17	Halogens	Valency -1	-ine

Periodic Table Groups (cont)

Group 18	Inert (Nobel) Gases	Valency 0	~on
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Diatomic nonmetals	H, Halogens, C, and O
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s-block	Group 1, 2
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p-block	Group 13 to 18
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d-block	Group 3 to 12
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Group 1 (Alkali Metals): +1

Hydrogen	H	1 (atomic number)	1x+1 = 1 u or amu
(Exception: Non-metal)			

Lithium	Li	3	2x+1=7
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Sodium	Na	3+8=11	2x+1=23
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Potassium	K	11+8=19	2x+1=39
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Rubidium	Rb	19+18=37	2x+11=85
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Caesium	Cs	37+18=55	2x+23=133
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Francium	Fr	55+32=87	2x+49=223
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Group 2 (Alkali Earth Metals): +2

Beryllium	Be	4
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Magnesium	Mg	4+8=12
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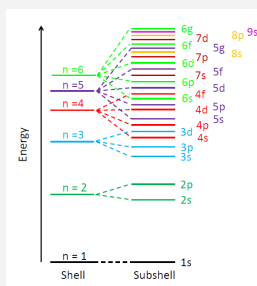
Calcium	Ca	12+8=20
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Strontium	Sr	20+18=38
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Barium	Ba	38+18=56
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Radium	Ra	56+32=88
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Energy levels of Orbitals



Group 17 (Halogens): -1

Fluorine	F	9
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Chlorine	Cl	9+8=17
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Bromine	Br	17+18=35
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Iodine	I	35+18=53
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Astatine (Exception: Metalloid)	At	53+32=85
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Ununseptium (Artificial Element)	Uus	85+32=117
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Group 18 (Inert or Noble Gases): 0

Helium	He	2
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Neon	Ne	2+8=10
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Argon	Ar	10+8=18
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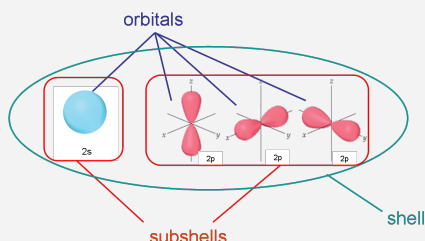
Krypton	Kr	18+18=36
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Xeon	Xe	36+18=54
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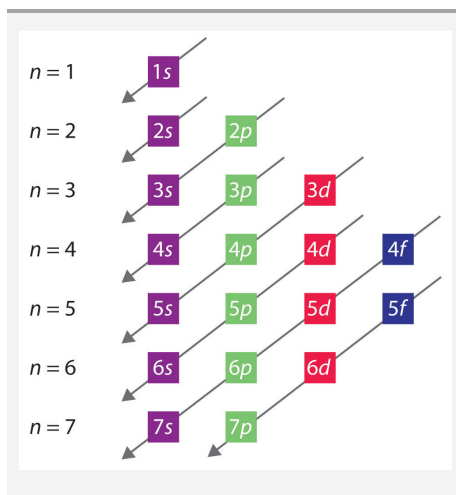
Radon	Rn	54+32=86
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Ununoctium	Uuo	86+32=118
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Shell, Subshell and Orbital



Electron Configuration - Filling Shells



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