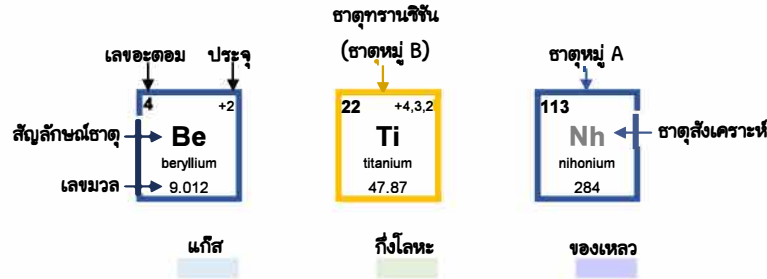


1	1s	1	±1	H hydrogen 1.008	2	±2
2	2s	3	+1	Li lithium 6.968	4	+2
3	3s	11	+1	Na sodium 22.99	12	+2
4	4s	19	+1	K potassium 39.10	20	+2
5	5s	37	+1	Rb rubidium 85.47	38	+2
6	6s	55	+1	Cs cesium 132.9	56	+2
7	7s	87	+1	Fr francium 223	88	+2



	3	4	5	6	7	8	9	10	11	12
	III B	IV B	V B	VI B	VII B	VIII B	VIII B	VIII B	I B	II B
3d	21	22	23	24	25	26	27	28	29	30
	Sc scandium 44.96	Ti titanium 47.87	V vanadium 50.94	Cr chromium 52.00	Mn manganese 54.94	Fe iron 55.85	Co cobalt 58.93	Ni nickel 58.69	Cu copper 63.55	Zn zinc 65.38
4d	39	40	41	42	43	44	45	46	47	48
	Y yttrium 88.91	Zr zirconium 91.22	Nb niobium 92.91	Mo molybdenum 95.95	Tc technetium 98	Ru ruthenium 101.1	Rh rhodium 102.9	Pd palladium 106.4	Ag silver 107.9	Cd cadmium 112.4
5d	71	72	73	74	75	76	77	78	79	80
	Lu lutetium 175.0	Hf hafnium 178.5	Ta tantalum 180.9	W tungsten 183.8	Re rhenium 186.2	Os osmium 190.2	Ir iridium 192.2	Pt platinum 195.1	Au gold 197.0	Hg mercury 200.6
6d	103	104	105	106	107	108	109	110	111	112
	Lr lawrencium 262	Rf rutherfordium 267	Db dubnium 268	Sg seaborgium 271	Bh bohrium 272	Hs hassium 270	Mt meitnerium 276	Ds darmstadtium 281	Rg roentgenium 280	Cn copernicium 285

	13	14	15	16	17	18
	III A	IV A	V A	VI A	VII A	VIII A
2p	5	6	7	8	9	10
	B boron 10.81	C carbon 12.01	N nitrogen 14.01	O oxygen 16.00	F fluorine 19.00	Ne neon 20.18
3p	13	14	15	16	17	18
	Al aluminum 26.98	Si silicon 28.09	P phosphorus 30.97	S sulfur 32.07	Cl chlorine 35.45	Ar argon 39.95
4p	31	32	33	34	35	36
	Ga gallium 69.72	Ge germanium 72.63	As arsenic 74.92	Se selenium 78.97	Br bromine 79.90	Kr krypton 83.80
5p	49	50	51	52	53	54
	In indium 114.8	Sn tin 118.7	Sb antimony 121.8	Te tellurium 127.6	I iodine 126.9	Xe xenon 131.3
6p	81	82	83	84	85	86
	Tl thallium 204.4	Pb lead 207.2	Bi bismuth 209.0	Po polonium 209	At astatine 210	Rn radon 222
7p	113	114	115	116	117	118
	Nh nihonium 284	Fl flerovium 289	Mc moscovium 288	Lv livermorium 293	Ts tennessine 292	Og oganeson 294

lanthanides  
(rare earth metals)

4f	57	58	59	60	61	62	63	64	65	66	67	68	69	70
	La lanthanum 138.9	Ce cerium 140.1	Pr praseodymium 140.9	Nd neodymium 144.2	Pm promethium 145	Sm samarium 150.4	Eu europium 152.0	Gd gadolinium 157.3	Tb terbium 158.9	Dy dysprosium 162.5	Ho holmium 164.9	Er erbium 167.3	Tm thulium 168.9	Yb ytterbium 173.1
5f	89	90	91	92	93	94	95	96	97	98	99	100	101	102
	Ac actinium 227	Th thorium 232.0	Pa protactinium 231.0	U uranium 238.0	Np neptunium 237	Pu plutonium 244	Am americium 243	Cm curium 247	Bk berkelium 247	Cf californium 251	Es einsteinium 252	Fm fermium 257	Md mendelevium 258	No nobelium 259



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