

Calculating Molar Mass and Particle Number

Determine the molar mass for the following compounds/molecules:

1. NaCl
2. O₂
3. Fe₂O₃
4. Na₂O
5. Ca(NO₃)₂

Formulas:

$$N = nN_A$$

$$n = \frac{m}{M}$$

N = # of particles

n = moles (mol)

N_A = Avogadro's number

M = molar mass (g/mol)

m = mass (g)

How many particles are in 310 grams of Na₂O?

How many grams are in 18.06×10^{25} particles of Ca(NO₃)₂?

TABLE OF RELATIVE ATOMIC MASS

Element	Symbol	Proton number	Relative atomic mass
Aluminum	Al	13	27.0
Antimony	Sb	51	121.76
Argon	Ar	18	40.0
Arsenic	As	33	74.9
Barium	Ba	56	137.3
Beryllium	Be	4	9.0
Bismuth	Bi	83	208.0
Boron	B	5	10.8
Bromine	Br	35	79.9
Cadmium	Cd	48	112.4
Calcium	Ca	20	40.1
Carbon	C	6	12.0
Cerium	Ce	58	140.1
Cesium	Cs	55	132.9
Chlorine	Cl	17	35.5
Chromium	Cr	24	52.0
Cobalt	Co	27	58.9
Copper	Cu	29	63.6
Fluorine	F	9	19.0
Gold	Au	79	197.0
Helium	He	2	4.0
Hydrogen	H	1	1.0
Iodine	I	53	126.9
Iron	Fe	26	55.9
Krypton	Kr	36	83.8
Lead	Pb	82	207.2
Lithium	Li	3	6.9
Magnesium	Mg	12	24.3
Manganese	Mn	25	54.9
Mercury	Hg	80	200.6
Neon	Ne	10	20.2
Nickel	Ni	28	58.7
Nitrogen	N	7	14.0
Oxygen	O	8	16.0
Phosphorus	P	15	31.0
Platinum	Pt	78	195.1
Potassium	K	19	39.1
Protactinium	Pa	91	231.0
Radium	Ra	88	226.0
Radon	Rn	86	222.0

Rubidium	Rb	37	85.5
Scandium	Sc	21	45.0
Selenium	Se	34	79.0
Silicon	Si	14	28.09
Silver	Ag	47	107.9
Sodium	Na	11	23.0
Strontium	Sr	38	87.6
Sulphur	S	16	32.07
Tin	Sn	50	118.7
Tungsten	W	74	183.9
Uranium	U	92	238.0
Zinc	Zn	30	65.4