

Chemistry Ch. 9 help sheet - Mr. Kania
Here are some helpful reminders for your Ch. 9 Test

1. moles \rightarrow grams multiply the mole number by the molar mass of the compound.
2. grams \rightarrow moles divide the gram number by the molar mass of the compound.
3. moles \rightarrow molecules (or atoms) multiply the mole number by Avagadro's number
 6.02×10^{23}
4. molecules (or atoms) \rightarrow moles divide the molecules or atom # by Avagadro's number.
5. molecule \rightarrow grams must do two conversions convert molecules to moles and then moles to grams.
6. grams \rightarrow molecules must do two conversions convert grams to moles and then moles to molecules.
10. percent composition : mass of the one you are looking for divided by the total mass.
11. empirical formula: take numbers (either grams or percent) and divide by molar mass on the periodic table. Then compare your numbers, divide by the smallest of them, then find the smallest whole number ratio.
12. molecular formula: take the empirical formula and calculate the molar mass. Then take the molecular mass given in the problem and divide by the empirical formula molar mass. Multiply the empirical formula if necessary.

$$\text{mol} \rightarrow \text{g} \quad \text{mol} \times 22.4 \\ \text{g} \rightarrow \text{mole} \quad \text{g} \div 22.4$$

- Solid - liquid - gas

metals earth metals 2 metals light metals

alkaline

alkaline

Periodic Table of the Elements

In the periodic table the elements are arranged in order of increasing atomic number. Vertical columns headed by Arabic numerals are called Groups. A horizontal sequence of elements is called a Period. The most active elements are at the bottom left of Group 1 and the top right of Group 17. The staggered line (Groups 13-17) roughly separates metallic from non-metallic elements.

Groups—Elements within a Group have similar properties and contain the same number of electrons in their outside energy shell.

—The first Group (1) contains

- hydrogen and the alkali metals.
- The last (18) contains the noble gases.
- Group (17) contains the halogens.
- The elements intervening between Groups 2 and 13 are called transition elements.
- Short vertical columns without Arabic numerical headings are called Subgroups.

Periods—In a given Period the properties of the elements gradually pass from a metallic to a non-metallic nature, with the last number of a period being a noble gas.

halogens gases

VII
Helium 4.003
He

VIII
Neon 20.180
Ne

IX
Fluorine 18.998
F

X
Chlorine 35.453
Cl

XI
Bromine 79.904
Br

XII
Iodine 126.90
I

XIII
Astatine (210)
At

XIV
Ununhexium (289)
Uuh

XV
Ununpentium (293)
Uuo

XVI
Ununquadium (298)
Uuq

XVII
Ununhexium (299)
Uuu

XVIII
Ununseptium (300)
Uus

XIX
Ununoctium (301)
Uuo

XX
Ununoctium (302)
Uuq

1st element in family

2nd element

3rd element

4th element

5th element

6th element

7th element

8th element

9th element

10th element

11th element

12th element

13th element

14th element

15th element

16th element

17th element

18th element

19th element

20th element

21st element

22nd element

23rd element

24th element

25th element

26th element

27th element

28th element

29th element

30th element

31st element

32nd element

33rd element

34th element

35th element

36th element

37th element

38th element

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40th element

41st element

42nd element

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106th element

107th element

108th element

109th element

110th element

111th element

112th element

113th element

114th element

115th element

116th element

117th element

118th element

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201st element

202nd element

203rd element

204th element

205th element

206th element

207th element

208th element

209th element

210th element

211th element

212th element

213th element

214th element

215th element

216th element

217th element

218th element

219th element

220th element

221st element

222nd element

223rd element

224th element

225th element

226th element

227th element

228th element

229th element

230th element

231st element

232nd element

233rd element

234th element

235th element

236th element

237th element

238th element

239th element

240th element

241st element

242nd element

243rd element

244th element

245th element

246th element

247th element

248th element

249th element

250th element

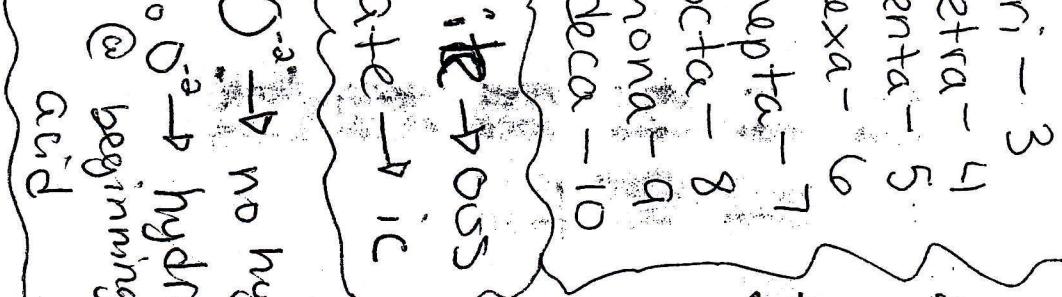
251st element

252nd element

mono - 1
di - 2
tri - 3
tetra - 4
penta - 5
hexa - 6
hepta - 7
octa - 8
nona - 9
deca - 10

molecular formula
molar mass

molecular formula
molar mass

NAME IT 

Ionic (no prefix)

covalent / molecular (prefixes)

- 1) prefixes become subscripts
- 2) write 1st element symbol
- 3) write 2nd symbol

Done

reduced
wrap polyatomic ions leave alone (like or like)

metal + non metal
or
polyatomic

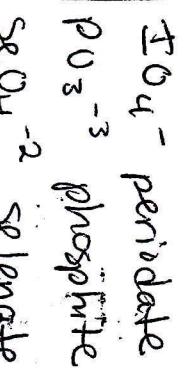
1) name metal or 1st thing

2) name non-metals or 2nd thing w/
-ide ending

o⁻² → no hydro
o⁻² → hydro unless polyatomic

@ beginning of use roman numerals for hatebox

acid



empirical - % atomic #

molar mass

molecular formula

molar mass

