

Copying the answers to this review will not benefit you. These are sample questions that you should be able to answer for any compound. Make sure you can do/solve/name all the types of examples here.

Name: Mr. Sudbury - Key Period: Date:

Test Review: Nomenclature, % Composition, & Mole Conversions

Naming/ Formula Writing Practice

1. Name the following compounds:

Ammonium Hydroxide

a. NH_4OH

Potassium Sulfite

b. K_2SO_3

Sodium Iodide

c. NaI

Iron(III) oxide

d. Fe_2O_3

Phosphorus trichloride

e. PCl_3

HINT: Make sure you can name binary ionic compounds, ternary ionic compounds, covalent compounds and acids. Also make sure that you can write a compound formula from the ions and determine what ions criss-crossed to make up the formula. Also, when or why would you need Roman Numerals?

2. Write correct chemical formulas for each of the following:

CaSO_4

a. calcium sulfate
 $\text{Ca}^{2+} \text{SO}_4^{2-}$

C_6H_6

b. hexacarbon hexahydride
 C_6H_6

PbCl_2

c. lead(II) chloride
 $\text{Pb}^{2+} \text{Cl}^{-}$

ZnCl

d. zinc ^(I)chloride
 $\text{Zn}^{+1} \text{Cl}^{-1}$

$(\text{NH}_4)_3\text{PO}_4$

e. ammonium phosphate
 $\text{NH}_4^{+1} \text{PO}_4^{3-}$

CuS_2

f. copper (I) sulfide
 $\text{Cu}^{+1} \text{S}^{-2}$

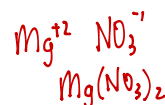
Hint: If it is ionic (M=NM) look up the charges on the PT or the Polyatomic Ion Chart and criss-cross. Reduce if necessary, and make sure you use parenthesis on polyatomic ions if you criss-crossed a number larger than 1.

Molar Mass/GFM Practice

3. Find the molar mass or GFM of each of the following:

148 g/mol

a. magnesium nitrate (Hint: Write the formula first)



GFM =

$$\begin{aligned} \text{Mg} &= 1 \times 24 = 24 \\ \text{N} &= 2 \times 14 = 28 \\ \text{O} &= 6 \times 16 = 96 \\ &\hline &148 \end{aligned}$$

342 g/mol

b. $\text{C}_{12}\text{H}_{22}\text{O}_{11}$

$$\begin{aligned} \text{GFM:} \\ \text{C} &= 12 \times 12 = 144 \\ \text{H} &= 22 \times 1 = 22 \\ \text{O} &= 11 \times 16 = 176 \\ &\hline &342 \end{aligned}$$

400 g/mol

c. iron(III) sulfate (Hint: Write the formula first)



$$\begin{aligned} \text{GFM:} \\ \text{Fe} &= 2 \times 56 = 112 \\ \text{S} &= 3 \times 32 = 96 \\ \text{O} &= 12 \times 16 = 192 \\ &\hline &400 \end{aligned}$$

Percentage Composition Practice

4. Find the percentage composition of $\text{Mg}(\text{OH})_2$: GFM = 58 g

$$\frac{24}{58} \times 100 = 41.3\%$$

% Mg

$$\frac{32}{58} \times 100 = 55.2\%$$

% O

$$\frac{2}{58} \times 100 = 3.4\%$$

% H

5. The name of the compound in the previous problem is:

magnesium Hydroxide

6. Find the percentage composition of CF_6 : GFM = 126

$$\frac{12}{126} \times 100 = 9.5\%$$

% C

$$\frac{114}{126} \times 100 = 90.5\%$$

% F

7. The name of the compound in the previous problem is:

Carbon hexafluoride

8. Find the percentage composition of CuCl_2 : GFM = 134 g

$$\frac{64}{134} \times 100 = 47.8\%$$

% Cu

$$\frac{70}{134} \times 100 = 52.2\%$$

% Cl

9. The name of the compound in the previous problem is:

Copper (II) Chloride

Mole Conversion Practice

10. How many moles are represented by each of the following:

a. 12.0 g H_2O

$$\frac{12.0 \text{ g H}_2\text{O}}{18 \text{ g H}_2\text{O}} \times \frac{1 \text{ mol H}_2\text{O}}{1 \text{ mol H}_2\text{O}} = 0.67 \text{ mol H}_2\text{O}$$

b. 305 g NaOH

$$\frac{305 \text{ g NaOH}}{40 \text{ g NaOH}} \times \frac{1 \text{ mol NaOH}}{1 \text{ mol NaOH}} = 7.63 \text{ mol NaOH}$$

11. How many formula particles are represented in questions 10a and 10b above?

A)

$$\frac{12.0 \text{ g H}_2\text{O}}{18 \text{ g H}_2\text{O}} \times \frac{1 \text{ mol H}_2\text{O}}{1 \text{ mol H}_2\text{O}} \times 6.022 \times 10^{23} \text{ molecules} = 4.01 \times 10^{23} \text{ H}_2\text{O molecules}$$

or

$$\frac{0.67 \text{ mol H}_2\text{O}}{1 \text{ mol H}_2\text{O}} \times 6.022 \times 10^{23} \text{ molecules} = 4.03 \times 10^{23} \text{ H}_2\text{O molecules}$$

$$\text{b) } \frac{305 \text{ g NaOH}}{40 \text{ g NaOH}} \times \frac{1 \text{ mol NaOH}}{1 \text{ mol NaOH}} \times 6.022 \times 10^{23} \text{ NaOH particles} = 4.59 \times 10^{24} \text{ NaOH particles}$$

$$\text{or } \frac{7.63 \text{ mol NaOH}}{1 \text{ mol NaOH}} \times 6.022 \times 10^{23} \text{ NaOH particles} = 4.59 \times 10^{24} \text{ NaOH particles}$$