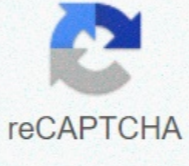




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# Worksheet mole mass problems answer key

**Worksheet mole/mass problems answer key. Worksheet mixed problems-mole/mole and mole/mass answer key. Stoichiometry worksheet #2 (mole-mass mass-mole problems) answer key. Mole/mass worksheet answers. Mole/mass problems worksheet answers. Worksheet mole problems answer key.**

This page will contain molar mass worksheet answers that will provide practical examples of how to calculate the molar masses of compounds. The molar mass worksheet contains explanations on how to navigate from moles to molarity to molar masses. Molar mass worksheet answers will help chemistry students calculate the molar masses of different compounds and molecules when given parameters such as molarity, moles, and mass of a substance.

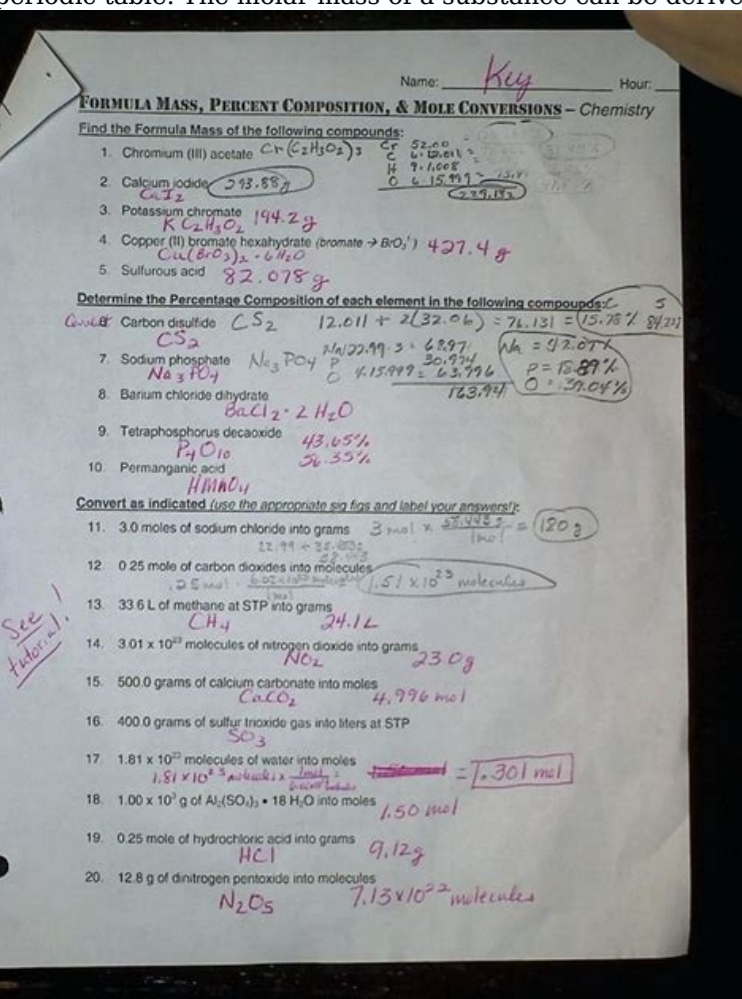
## CHM 0062: Chemistry Mole ratio worksheet

Name \_\_\_\_\_

Write the balanced equation and solve each of the following:

- Aluminum metal and hydrogen chloride react to form aluminum chloride and hydrogen gas.
  - How many moles of aluminum metal are needed to produce 3.33 moles of aluminum chloride?
  - How many moles of hydrogen chloride are needed to react with this number of moles of aluminum metal?
- Aluminum bromide and sodium hydroxide react to form aluminum hydroxide and sodium bromide.
  - How many moles of sodium bromide can be formed from 1.55 moles of aluminum bromide?
  - How many moles of aluminum hydroxide may be formed from 4.65 moles of sodium hydroxide?
- Methane gas (carbon tetrahydride) reacts with oxygen gas to form carbon dioxide and water.
  - How many moles of methane gas are needed to produce  $3.5 \times 10^4$  moles of carbon dioxide?
  - How many moles of oxygen are needed to react to form the  $3.5 \times 10^4$  moles of carbon dioxide?
  - How many moles of atoms of oxygen would there be in your answer to question #3b?

Molar mass worksheet answers contain practical examples of how to convert the different concentration parameters of chemical substances. The worksheet contains conversion practicals between molarity, moles, mass, and molar mass. This molar mass worksheet answer has explained how to calculate the molar mass of chemical substances when given other parameters such as moles, mass, or molarity. The following images were used in the worksheet. In chemistry, the concentration of chemical substances can be explained using different parameters such as molarity, moles, and grams per liter. To determine the concentration of these substances in the aforementioned parameters, a very important parameter must first be identified, which is the molar mass. To understand the different molar mass calculations, let us first define the following terms: The word molar is obtained from the word moles, and therefore, the molar mass is the mass of a substance in grams, in one mole of that particular substance. The mole, also designated as mol, is the SI unit for measuring the amount of substance in a compound, or amount of something in a system. In Avogadro's constant, 1 mole contains  $6.02214076 \times 10^{23}$  particles. Molarity, also called Molar concentration, is a measure of the concentration of a chemical species, in particular of a solute in a solution, in terms of the amount of substance per unit volume of solution. In other words, it is the concentration of a solute in moles, per 1 liter of a solution. It is designated as mol/L or mol/dm<sup>3</sup>. The relative formula mass of a substance made up of molecules is the sum of the relative atomic masses of the atoms in the numbers shown in the formula. Relative formula mass is usually referred to with molecules and compounds. It carries the same meaning as the molar mass when calculating concentrations. Atomic mass is the mass of the individual unit of the compound. Atomic mass is the mass of one atom of an element. The molar mass of a substance in one mole is the same as its atomic mass. The table below shows the atomic masses of the first 20 elements of the periodic table. The molar mass of a substance can be derived from the moles or the mass of a substance. The calculation is dependent on the following formula.

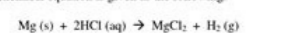


From the information above, the following can be deduced: Mass (g) = number of moles x molar mass.  $m = n \times Mr$  Moles (n) = mass(m) / molar mass (Mr)  $n = m / M$  Molar mass (Mr) = mass (m) / mole (n)  $M = m / n$ . Define the following terms. Molar mass: The word molar is obtained from the word moles, and therefore, the molar mass is the mass of a substance in grams, in one mole of that particular substance. Atomic mass: Atomic mass is the mass of the individual unit of the compound. Atomic mass is the mass of one atom of an element. The molar mass of a substance in one mole is the same as its atomic mass. Mole: The mole, also designated as mol, is the SI unit for measuring the amount of substance in a compound, or amount of something in a system. In Avogadro's constant, 1 mole contains  $6.02214076 \times 10^{23}$  particles. Molarity: Molarity, also called Molar concentration, is a measure of the concentration of a chemical species, in particular of a solute in a solution, in terms of the amount of substance per unit volume of solution. In other words, it is the concentration of a solute in moles, per 1 liter of a solution. It is designated as mol/L or mol/dm<sup>3</sup>. Relative formula mass (RFM): The relative formula mass of a substance made up of molecules is the sum of the relative atomic masses of the atoms in the numbers shown in the formula. Relative formula mass is usually referred to with molecules and compounds. It carries the same meaning as the molar mass when calculating concentrations. 2.) Calculate the mass of the following compounds. 3.) Calculate the relative formula mass of the following compounds.

Date: \_\_\_\_\_ Block: \_\_\_\_\_ Name: \_\_\_\_\_

### Chemistry 11: MOLE RATIO (using the three-step method)

Magnesium metal reacts with hydrochloric acid to produce magnesium chloride and hydrogen gas. The chemical equation is given as follows:



If 4 moles of HCl is used, how many moles of MgCl<sub>2</sub> will be formed in the reaction?

Step (1): What is the mole ratio for HCl to MgCl<sub>2</sub>?

2 mol HCl : 1 mol MgCl<sub>2</sub>

Step (2): Write two conversion factors for this mole ratio.

$\frac{2 \text{ mol HCl}}{1 \text{ mol MgCl}_2}$  or  $\frac{1 \text{ mol MgCl}_2}{2 \text{ mol HCl}}$

Step (3): Calculate the number of moles of MgCl<sub>2</sub> formed.

What you want = What you have x Conversion factor

Moles MgCl<sub>2</sub> = 4 mol HCl x  $\frac{1 \text{ mol MgCl}_2}{2 \text{ mol HCl}}$

= 2 mol MgCl<sub>2</sub>

Show any three sample questions on a separate sheet of paper using the 3-step method!

1.  $3\text{CaCl}_2 + 2\text{NaCl} \rightarrow 6\text{Cl}_2 + 2\text{Na} + \text{CaCl}_2$

a) If 0.65 moles of CaCl<sub>2</sub> is used, how many moles of Cl<sub>2</sub> will be formed in the reaction? **Answer: 0.40 mol Cl<sub>2</sub>**

b) If 1.07 moles of Na is formed in the reaction, how many moles of NaCl, was used at the start of the reaction? **Answer: 0.49 mol NaCl**

2. In a Chemistry 11 experiment, 0.010 moles of calcium chloride reacted with sulfuric acid in a beaker. This results in the formation of calcium chloride and calcium sulfate. How many moles of sulfur dioxide are formed in the reaction? **Answer: 0.020 mol SO<sub>2</sub>**

Na<sub>2</sub>SO<sub>4</sub>. The atomic mass of respective elements. HCl Add the total of each atomic mass. Add the respective atomic masses. 4.) Calculate the moles of the following substances. 30g of NaCl 0.0118 moles. 20g of KCl The relative formula mass of KCl. You can download this worksheet here.