

The Mole Lesson 4 Check for Understanding

Stoichiometry Worksheet

Directions: Solve the following problems in your journal. Be sure to show all work. Use units in your final answer to the proper number of sig figs.. Please note that you will find the answers at the end of the document.
All Calculations Must use a Mole Ratio to convert from one substance to another!

Mole Ratio: ? mol A = ? mol B

(?= coefficient from balanced chemical equation)

Other conversion factors needed: 1 mol = molar mass (g) ← found on Periodic Table

PART ONE:

1. $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$ How many moles of NH_3 are produced when **.60 mol** of N_2 reacts with H_2 ?

2. $4\text{Li} + \text{O}_2 \rightarrow 2\text{Li}_2\text{O}$ How many moles of Li_2O will form if **2.00 mol** Li reacts?

3. $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ What mass in grams of MgO is produced from **2.00 mol** Mg?

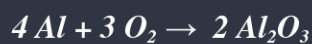
4. $2\text{HgO} \rightarrow 2\text{Hg} + 1\text{O}_2$ How many moles of HgO are needed to produce **125 g** of O_2 ?

5. $2\text{NaCl} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{Cl}_2 + \text{H}_2$ If brine contains **250. g** NaCl, how many moles of Cl_2 are produced?

Answers: 1) 1.2 mol NH_3 2) 1.00 mol Li_2O 3) 80.6 g MgO 4) 7.81 mol HgO 5) 2.14 mol Cl_2

PART TWO

Equation for questions 1-4:



Mol-Mol

1. How many moles of oxygen are needed to react with 7.5 moles of aluminum?

Mol-Mass

2. How many grams of aluminum oxide would form if 12.5 moles of aluminum burned?

Mass-Mol

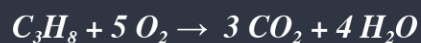
3. How many moles of oxygen are needed to react with 100.0 grams of aluminum?

Mass-Mass

4. How many grams of aluminum burned if 200.0 grams of aluminum oxide formed?

Ans: 1) 5.6 mol O₂ 2) 637 g Al₂O₃ 3) 2.780 mol O₂ 4) 105.9 g Al

Equation for questions 5-8:



Mol-Mol

5. How many moles of carbon dioxide will form if 5.5 moles of C_3H_8 is burned

Mol-Mass

6. If 30.0 moles of oxygen are used, how many grams of water will form?

Mass-Mol

7. If 100. grams of C_3H_8 burns, how many moles of carbon dioxide will form?

Mass-Mass

8. How many grams of oxygen are needed to burn 5.0 grams of C_3H_8 ?

Equation for question 9: $2 KClO_3 \rightarrow 2 KCl + 3 O_2$

Mass-Mass

9. If 5.0 g of $KClO_3$ is decomposed, how many grams of KCl would be produced?

5) 17 mol CO_2 6) 430 g H_2O 7) 6.80 mol CO_2 8) 18 g O_2 9) 3.0 g KCl