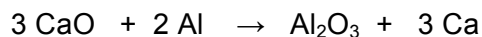


**Science and Environment  
Stoichiometry Assignment**

This assignment will be evaluated on neatness, completeness, and scientific thought.

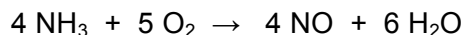
**Student's name:** \_\_\_\_\_ **class 4-**

1. Calcium oxide, CaO, reacts with aluminum according to the following equation



How many moles of aluminum are needed to react with 12 mol CaO?

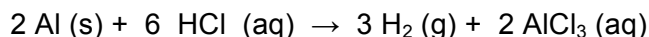
2. The following reaction takes place in a closed container at elevated temperatures.



Suppose 34.0 g NH<sub>3</sub> reacts with sufficient amounts of O<sub>2</sub> and 50.0 g H<sub>2</sub>O is produced.

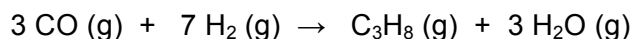
- A) Calculate the theoretical yield of H<sub>2</sub>O.  
B) Calculate the percent yield for this reaction.

3. A quick and inexpensive way to obtain hydrogen gas in the lab is to react a metal with an acid.



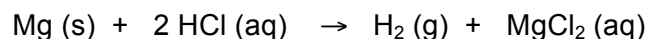
A 5.00-g piece of aluminum reacts with hydrochloric acid. How many H<sub>2</sub> molecules are produced?

4. At high conditions of temperature and pressure, propane gas can be produced by the following reaction.



A lab technician has at his disposal 9 moles of CO (g). How many moles of H<sub>2</sub> are needed for the above reaction to proceed?

5. Hydrogen gas can be produced in the lab by reacting Mg (s) with HCl (aq) according to the balanced equation below



What volume of 3 mol/L HCl is required to completely react with 3 mol Mg?