

Name: _____

HCHEM 2-Review Sheet for Stoichiometry and the Mole Test

Problems-show All of your work on a separate sheet of paper and use your UNITS to help solve!

- How many formula units are there in 5.6 moles of $\text{NaC}_2\text{H}_3\text{O}_2$? (6.02×10^{23} formula units/mol)
- Calculate the percent composition of $\text{C}_3\text{H}_7\text{OH}$.
- How many moles are there in 26 Liters of nitrogen gas?
- What is the percent composition of CO? If you have 465 grams of CO, how many grams of carbon do you have? how many grams of oxygen?
- How many liters are there in 3.8×10^{22} molecules of nitrogen gas(N_2)?
- How many formula units are there in 98 grams of KBr?
- Balance this equation: $\text{BaBr}_2 + \text{K}_2\text{O} \rightarrow \text{BaO} + \text{KBr}$
 - How many grams of BaBr_2 will be needed to react with 24.0 g of K_2O ?
 - If you have 19.0 g of K_2O , how many moles of KBr can be formed?
 - How many formula units of BaO will be produced by the complete reaction of 68.0 g of BaBr_2
- Balance the equation: $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{NO}_2(\text{g})$
 - How many grams of $\text{NO}_2(\text{g})$ will be produced if you react 4.2×10^{28} molecules of $\text{N}_2(\text{g})$?
 - If you have 32.0 L of oxygen gas, how many molecules of $\text{NO}_2(\text{g})$ can be produced?
 - If 3.9 moles of $\text{NO}_2(\text{g})$ are formed, how many moles of nitrogen gas are required?
- Balance this equation: $\text{Mg} + \text{PbCl}_4 \rightarrow \text{MgCl}_2 + \text{Pb}$

What is the percent yield if 12.5 g of lead is produced when 6.24 g of magnesium are reacted with an excess of lead (IV) chloride?
- Explain how percent yield would be useful in industrial applications.
- What is the empirical formula of a compound that is 48.4% carbon, 8.1% hydrogen, and 43.5% oxygen.
- What is the molecular formula of a compound that has an empirical formula of CH_2 and has a molar mass of the actual compound of 140.29 g/mole.
- Balance the equation: $\text{CH}_4(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + \text{H}_2\text{O}(\text{g})$

If you are given 38.0 g of $\text{CH}_4(\text{g})$ and 46.0 L of $\text{O}_2(\text{g})$:

 - Which is the limiting reagent? excess reagent?
 - How many grams of the excess reagent are left unreacted?
 - How many Liters of CO_2 would be produced by the reaction?

