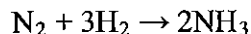


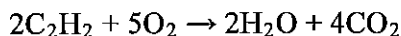
Limiting Reactants Worksheet

1. 3.45 moles of nitrogen gas (N_2) reacts with 4.85 moles of hydrogen gas (H_2) to form ammonia (NH_3).



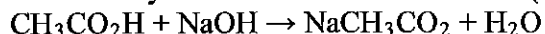
- (a) What is the limiting reactant?
(b) How many moles of ammonia will form?

2. A welder has 20.0 moles of acetylene gas (C_2H_2) and 10.0 moles of oxygen gas (O_2). They combine to form water and carbon dioxide.



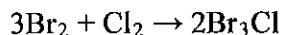
- (a) Identify the limiting reactant.
(b) How many moles of carbon dioxide gas (CO_2) will form?

3. A student places 2.36 moles of acetic acid ($\text{CH}_3\text{CO}_2\text{H}$) and 3.89 moles of sodium hydroxide (NaOH) in a beaker of water. They react to form sodium acetate (NaCH_3CO_2) and water.



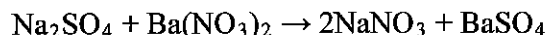
How many moles of water will form?

4. 0.300 moles of bromine gas (Br_2) and 0.500 moles of chlorine gas (Cl_2) react to form tribromochlorine (Br_3Cl).



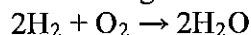
How many moles of this product will form?

5. 100.0 grams of sodium sulfate reacts with 50.00 grams of barium nitrate to form sodium nitrate and barium sulfate.



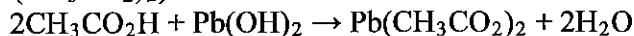
How many grams of barium sulfate will form?

6. 15.5 grams of hydrogen gas reacts with 30.0 grams of oxygen gas to form water vapor.



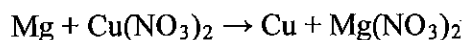
How many grams of water vapor will form?

7. 10.0 g of acetic acid ($\text{CH}_3\text{CO}_2\text{H}$) reacts with 10.0 g of lead(II) hydroxide to form water and lead(II) acetate ($\text{Pb}(\text{CH}_3\text{CO}_2)_2$) and water.



- (a) Which reactant is in excess?
(b) How many grams of it will remain after the reaction goes to completion? How many grams of lead (II) acetate will form?

8. 25.3 g of magnesium reacts with 44.3 g of copper (II) nitrate to form copper and magnesium nitrate.



- (a) What mass of copper will form?
(b) What mass of reactants will remain unreacted?

Chemistry Worksheet: Limiting Reactant Worksheet #1

1. Consider the following reaction: $2 \text{Al} + 6 \text{HBr} \rightarrow 2 \text{AlBr}_3 + 3 \text{H}_2$
 - a. When 3.22 moles of Al reacts with 4.96 moles of HBr, how many moles of H_2 are formed?
 - b. What is the limiting reactant?
 - c. For the reactant in excess, how many moles are left over at the end of the reaction?

2. Consider the following reaction: $3 \text{Si} + 2 \text{N}_2 \rightarrow \text{Si}_3\text{N}_4$
 - a. When 21.44 moles of Si reacts with 17.62 moles of N_2 , how many moles of Si_3N_4 are formed?
 - b. What is the limiting reactant?
 - c. For the reactant in excess, how many moles are left over at the end of the reaction?

3. Consider the following reaction: $2 \text{CuCl}_2 + 4 \text{KI} \rightarrow 2 \text{CuI} + 4 \text{KCl} + \text{I}_2$
 - a. When 0.56 moles of CuCl_2 reacts with 0.64 moles of KI, how many moles of I_2 are formed?
 - b. What is the limiting reactant?
 - c. For the reactant in excess, how many moles are left over at the end of the reaction?

4. Consider the following reaction: $4 \text{FeS}_2 + 11 \text{O}_2 \rightarrow 2 \text{Fe}_2\text{O}_3 + 8 \text{SO}_2$
 - a. When 26.62 moles of FeS_2 reacts with 5.44 moles of O_2 , how many moles of SO_2 are formed?
 - b. What is the limiting reactant?
 - c. For the reactant in excess, how many moles are left over at the end of the reaction?