

Stoichiometry Worksheet #2

- 1) Given the following equation: $2 \text{C}_4\text{H}_{10} + 13 \text{O}_2 \rightarrow 8 \text{CO}_2 + 10 \text{H}_2\text{O}$, show what each of the following molar ratios should be.
- a. $\text{C}_4\text{H}_{10} / \text{O}_2$ c. $\text{O}_2 / \text{H}_2\text{O}$ e. $\text{C}_4\text{H}_{10} / \text{H}_2\text{O}$
b. O_2 / CO_2 d. $\text{C}_4\text{H}_{10} / \text{CO}_2$
- 2) Given the following equation: $2 \text{KClO}_3 \rightarrow 2 \text{KCl} + 3 \text{O}_2$
How many moles of O_2 can be produced when 12.00 moles of KClO_3 react?
- 3) Given the following equation: $2 \text{K} + \text{Cl}_2 \rightarrow 2 \text{KCl}$
- a. How many grams of KCl is produced from 2.50 g of K and excess Cl_2 ?
b. How many grams of KCl is produced from 1.00 g of Cl_2 and excess K ?
- 4) Given the following equation: $\text{Na}_2\text{O} + \text{H}_2\text{O} \rightarrow 2 \text{NaOH}$
- a. How many grams of NaOH is produced from 1.20×10^2 grams of Na_2O ?
b. How many grams of Na_2O are needed to produce 1.60×10^2 g of NaOH ?
- 5) Given the following equation: $8 \text{Fe} + \text{S}_8 \rightarrow 8 \text{FeS}$
- a. What mass of iron is needed to react with 16.0 grams of sulfur?
b. How many grams of FeS are produced?
- 6) Given the following equation: $2 \text{NaClO}_3 \rightarrow 2 \text{NaCl} + 3 \text{O}_2$
- a. 12.00 moles of NaClO_3 will produce how many grams of O_2 ?
b. How many grams of NaCl are produced when 80g of O_2 are produced?
- 7) Given the following equation: $\text{Cu} + 2 \text{AgNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + 2 \text{Ag}$
- a. How many moles of Cu are needed to react with 3.50 moles of AgNO_3 ?
b. If 89.5 grams of Ag were produced, how many grams of Cu reacted?
- 8) Molten iron and carbon monoxide are produced in a blast furnace by the reaction of iron(III) oxide and coke (pure carbon). The reaction is:
 $\text{Fe}_2\text{O}_3 + 3 \text{C} \rightarrow 2 \text{Fe} + 3 \text{CO}$ If 25.0 kilograms of pure Fe_2O_3 is used, how many kilograms of iron can be produced?
- 9) The average human requires 120.0 grams of glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) per day. The photosynthetic reaction is: $6 \text{CO}_2 + 6 \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{O}_2$
How many grams of CO_2 (in the photosynthesis reaction) are required for this amount of glucose?
- 10) Given the reaction: $4 \text{NH}_3 (\text{g}) + 5 \text{O}_2 (\text{g}) \rightarrow 4 \text{NO} (\text{g}) + 6 \text{H}_2\text{O} (\text{l})$
When 1.20 mole of ammonia (NH_3) reacts, the total number of moles of products formed is which answer:
- A) 1.20
B) 1.50
C) 1.80
D) 3.00
E) 12.0

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