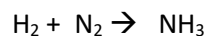
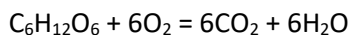


March 26, 2023

1. One of the most important hydrogen compounds is ammonia, which is obtained through high-temperature, high-pressure reaction of hydrogen and oxygen in the presence of a catalyst that facilitates the reaction:



- a. Balance the reactions
  - b. How many moles of ammonia forms from each mole of nitrogen?
  - c. How many moles of ammonia forms from each mole of hydrogen?
  - d. How many moles of hydrogen react with each mole of nitrogen?
  - e. How many grams of ammonia form from 6 grams of hydrogen?
  - f. How many grams of nitrogen react with 6 grams of hydrogen?
  - g. How many grams of hydrogen react with 56 grams of nitrogen?
  - h. How many grams of nitrogen is required to obtain 17 grams of ammonia?
  - i. How many liters of nitrogen is required to obtain 22.4 liters of ammonia?
  - j. How many liters of hydrogen is required to obtain 22.4 liters of ammonia?
2. Glucose is oxidized by a body according to the following chemical equation:



- a. How many moles of  $\text{CO}_2$  forms from each mole of glucose?
- b. How many moles of oxygen is required to oxidize each mole of glucose?
- c. How many liters of oxygen is required to oxidize each mole of glucose?
- d. How many liters of  $\text{CO}_2$  forms from oxidation of 276 g of glucose?
- e. How many grams of water forms from oxidation of 552 g of glucose?