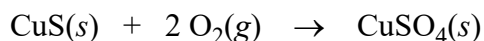


**Ch 5/Worksheet – 2 Partial Pressure and Stoichiometry**    **Name:** \_\_\_\_\_

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- 1) A sample of air collected at STP contains 0.039 moles of N<sub>2</sub>, 0.010 moles of O<sub>2</sub>, and 0.001 moles of Ar. (Assume no other gases are present.)
- a) Find the partial pressure of O<sub>2</sub>. (0.20 atm)
  - b) What is the volume of the container? (1.1 L)
- 
- 2) A sample of hydrogen gas (H<sub>2</sub>) is collected over water at 19°C.
- a) What are the partial pressures of H<sub>2</sub> and water vapor if the total pressure is 756 mm Hg?
  - b) What is the partial pressure of hydrogen gas in atmospheres?
- 
- 3) What volume of O<sub>2</sub> at 710. mm Hg pressure and 36°C is required to react with 6.52 g of CuS? (Ans: 3.7 L)



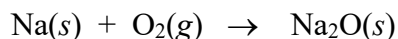
4) Write a balanced equation for the production of ammonia gas (NH<sub>3</sub>) from nitrogen gas (N<sub>2</sub>) and hydrogen gas (H<sub>2</sub>).

a) What volume of ammonia is produced from 4.50 liters of H<sub>2</sub> at STP? (Ans: 3.00 L)

b) What mass of ammonia is produced from 5.60 liters of N<sub>2</sub> at STP? (Ans: 8.50 g)

c) What volume of ammonia is produced from 12.1 grams of H<sub>2</sub> at 25°C and 1.00 atmosphere pressure? (Ans: 98.0 L)

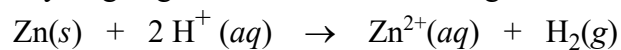
5) Use the following chemical equation to answer the questions below. (*Make sure the equation is balanced*).



a) How many grams of sodium are needed to completely react with 2.80 liters of O<sub>2</sub> at STP? (Ans: 11.5g)

b) What volume of O<sub>2</sub> at 25°C and 2.00 atm is needed to completely react with 4.60 grams of sodium? (Ans: 0.610 L)

- 6) To prepare a sample of hydrogen gas, a student reacts 7.78 grams of zinc with acid:



The hydrogen is collected over water at 22°C and the total pressure of gas collected is 750. mm Hg. What is the partial pressure of H<sub>2</sub>? What volume of hydrogen gas is collected?

(Ans: 3.00 L)

- 7) Hydrogen peroxide was catalytically decomposed and 75.3 mL of oxygen gas was collected over water at 25°C and 742 torr. What mass of oxygen was collected?  
a) 0.00291 g      **b) 0.0931 g**      c) 0.0962 g      d) 0.0993 g      e) 0.962 g

Vapor Pressure of Water											
Temp (°C)	15	16	17	18	19	20	21	22	23	24	25
P <sub>H<sub>2</sub>O</sub> (mm Hg)	13	14	15	15	16	18	19	20	21	22	24