Name : _____ Date : _____

The Mole and Volume Worksheet

At STP (273 K and 1 atm pressure), 1 mole occupies 22.4 liters of volume. With this information, answer the following questions.

1) What is the volume occupied by 1 mole of H_2?

2) What is the volume occupied by 0.75 moles of N_2?

3) What is the volume occupied by 0.5 moles of NH_3?

4) What is the volume occupied by 1.75 moles of CO_2?

5) What is the volume occupied by 3.2 moles of O_2?

6) How much volume is occupied by 5 grams of H_2?

7) How much volume is occupied by 10 grams of NH_3?

8) How much volume is occupied by 100 grams of O_2?

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The Mole and Volume Worksheet

Answers

1) What is the volume occupied by 1 mole of H_2?

Volume occupied = 1 mole x 22.4 liters = 22.4 liters

2) What is the volume occupied by 0.75 moles of N_2?

Volume occupied = 0.75 moles x 22.4 liters = 16.8 liters

3) What is the volume occupied by 0.5 moles of NH_3?

Volume occupied = 0.5 moles x 22.4 liters = 11.2 liters

4) What is the volume occupied by 1.75 moles of CO_2?

Volume occupied = 1.75 moles x 22.4 liters = 39.2 liters

5) What is the volume occupied by 3.2 moles of O_2?

Volume occupied = 3.2 moles x 22.4 liters = 71.68 liters

6) How much volume is occupied by 5 grams of H_2?

Molar mass of H_2 = 2 g/mol

Volume occupied = (5/2) x 22.4 liters = 56 liters

7) How much volume is occupied by 10 grams of NH_3?

Molar mass of NH_3 = 17 g/mol

Volume occupied = (10/17) x 22.4 liters = 13.17 liters

8) How much volume is occupied by 100 grams of O_2?

Molar mass of O_2 = 32 g/mol

Volume occupied = (100/32) x 22.4 liters = 70 liters