**Ideal Gas Law Practice**

1) You have 0.00831 moles of a gas are at 1.01 atm and 25°C. What is the volume of the gas?

2) What is the pressure of a gas of which you have 0.00801 moles and occupies 0.602 L at 311 K?

3) At what temperature would 2.10 moles of N2 gas have a pressure of 1.25 atm and in a 25.0 L tank?

4) When filling a weather balloon with gas you have to consider that the gas will expand greatly as it rises and the pressure decreases. Let’s say you put about 10.0 moles of He gas into a balloon that can inflate to hold 5000.0 L. Currently, the balloon is not full because of the high pressure on the ground. What is the pressure when the balloon rises to a point where the temperature is –10.0 °C and the balloon has completely filled with the gas?

5) What is the volume of 1.00 mole of a gas at standard temperature and pressure?

6) What volume of He is occupied by 2.35 mol of He at 25°C and a pressure of 0.980 atm?

7) Determine the volume of 2.34 grams of carbon dioxide (CO2) gas at STP.

8) A sample of argon gas at STP occupies 56.2 liters. Determine the number of moles of argon and the mass in the sample.

9) At what temperature will 0.654 moles of neon (Ne) gas occupy 12.30 liters at 1.95 atmospheres?

10) A 30.6 g sample of gas occupies 22.414 L at STP. How many moles are in this gas?

11) A 40.0 g gas sample occupies 11.2 L at STP. Find the number of moles in this gas.

12) A 12.0 g sample of gas occupies 19.2 L at STP. How many moles are in this gas?

13) What volume is occupied by 5.03 g of O2 at 28°C and a pressure of 0.998 atm?

14) Calculate the pressure in a 212 liter tank containing 23.3 kg of argon (Ar) gas at 25°C?

15) At what temperature does 16.3 g of nitrogen gas (N2) have a pressure of 1.25atm in a 25.0 L tank?

16) At what temperature does 5.00g of H2 occupy a volume of 50.0 L at a pressure of 1.01 atm?

17) What mass of CO2 is needed to fill an 80.0 L tank to a pressure of 150.0 atm at 27.0°C?

18) 5.600 g of solid CO2 is put in an empty sealed 4.00 L container at a temperature of 300. K. When all the solid CO2 becomes gas, what will be the pressure in the container?

**Answers (in random order):**

0.0432 0.20 0.340 0.500 0.783 0.857 1.0000 1.19 2.51 3.9 22.4 59 67 100 181 246 447 653 21400

atm atm atm atm K K K K L L L L L mole moles moles moles grams grams