

PRACTICE PROBLEMS FOR IDEAL GAS LAW

1. What is the pressure in atmospheres exerted by a 0.500 mol sample of nitrogen gas in a 10.0 L container at 298 K? **1.22 atm**
2. What pressure, in atmospheres, is exerted by 0.325 mol of hydrogen gas in a 4.08 L container at 35 °C? **2.01 atm**
3. What is the volume, in liters, of 0.250 mol of oxygen gas at 20.0 °C and 0.974 atm pressure? **6.17 L**
4. A sample that contains 4.38 mol of a gas at 250 K has a pressure of 0.857 atm. What is the volume? **105 L**
5. What mass of chlorine gas, Cl₂, in grams, is contained in a 10.0 L tank at 27 °C and 0.350 atm of pressure? **10.1 g Cl₂**
6. How many grams of carbon dioxide are there in a 45.1 L container at 34 °C and 1.04 atm? **81.9 g CO₂**
7. A sample of carbon dioxide with a mass of 0.30 g was placed in a 250 mL container at 400. K. What is the pressure exerted by the gas? **.89 atm**
8. At 28 °C and 0.974 atm, 1.00 L of gas has a mass of 5.16 g. What is the molar mass of this gas? **131 g/mol**
9. What is the molar mass of a gas if 0.427 g of the gas occupies a volume of 125 mL at 20.0 °C and 0.980 atm? **83.8 g/mol**
10. What is the density of a sample of ammonia gas, NH₃, if the pressure is 0.928 atm and the temperature is 63.0 °C? **.573 g/L**
11. The density of a gas was found to be 2.0 g/L at 1.50 atm and 27 °C. What is the molar mass of the gas? **33 g/mol**
12. What is the density of argon gas, Ar, at a pressure of 551 torr and a temperature of 25 °C. **1.18 g/L**