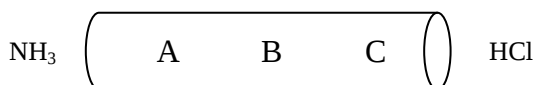


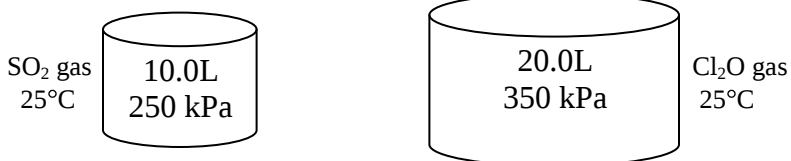
Name: _____

Chemistry Worksheet: Gas Laws

1. A 3.44 liter sample of gas at 0.994 atm and 18.2°C is heated to 65.0°C and increased in pressure to 1.28 atm pressure. What is the new volume of the gas?
2. What is the density of CO₂ gas at STP? What is the density of SF₆ at STP? Compare the relative rates of diffusion of these two gases. Which has the greater velocity?
3. What is the density of C₄H₁₀ gas at 26.0°C and 812.5 kPa?
4. What volume will 35.3g of nitrogen dioxide gas occupy at 18.6°C and 1.55 atm?
5. A gas has a volume of 1.00 L at 35.0°C and 1.0atm pressure. What temperature is needed to increase the volume of the gas to 1.35 L if the pressure drops to 0.87 atm?
6. Compare the relative rate of diffusion of CH₄ with C₃H₈ gas.
7. At 24.0°C the vapor pressure of water is 2.99 kPa. 4.0L of nitrogen gas is collected over water at 24.0°C and 1.04atm pressure. What is the pressure of the dry nitrogen gas?
8. You have a container filled with a mixture of five gases: He, H₂, O₂, CO₂, and N₂. The pressure of each gas is identical, resulting in an overall pressure of 100.0 kPa.
 - a.) What is the partial pressure of each gas?
 - b.) Which gas has the largest number of moles?
 - c.) Which gas has the greatest kinetic energy?
 - d.) Which gas has the fastest velocity?
9. NH₃ gas reacts with HCl gas to produce solid NH₄Cl. Refer to the diagram below. Will the NH₄Cl form at point A,B, or C?



10. A 50.0 liter cylinder contains 25.0g of H₂ and 25.0g of O₂ at 20.0°C. What is the partial pressure of each gas and the total pressure of both gases when combined.
11. Three gases; He, Ne, and Ar are contained in a tank at a total pressure of 7.5atm. There are 1.5 moles of He, 2.5 moles of Ne, and 6.0 moles of Ar.
 - a.) What is the partial pressure of each gas?
 - b.) Which gas has the greatest kinetic energy?
 - c.) Which gas has the fastest velocity?
 - d.) Which gas has the greatest density?
12. 0.1 moles of H₂ and 0.1 moles of O₂ gas are held in a 1.0L tank at the same temperature. Which gas exerts the greater pressure?
13. A chemist measures 1.449 grams of an unknown gas in a 500.0-ml flask at 26.2°C. The pressure of the gas is 46.8 kPa. What is the molecular mass of the gas?
14. What is the partial pressure and total pressure of each gas when the SO₂ is transferred to the Cl₂O tank?



15. How many grams of Cl_2O gas are contained in a 3.0×10^4 liter tank at -28.2°C and 3.2×10^2 atm pressure?
16. What is the density of N_2O gas at 4.60 atm and 100.0°C ?
17. At what Celsius temperature will 2.5×10^{-3} moles of oxygen gas be if the pressure is 0.65 atm in a 10.0ml cartridge?
18. 50.0g of the most dense gas in the world, UF_6 , is contained in a steel vessel. How many grams of the lightest gas, H_2 , would fit into the same vessel under the same conditions of pressure and temperature?
19. What volume would 2.50 moles of UF_6 gas occupy at 24.5°C and 1.25 atm pressure? Repeat for same conditions and amounts for the gases: H_2 , SO_2 , CH_4 , Cl_2 , N_2 , O_2 , OCl_2 , and phosphine.
20. How many grams of Cl_2 gas are contained in 30.0 ml flask at 104.7kPa and 28.0°C ?
21. A chemist requires the addition of 0.010 moles of Serin gas. If the gas is stored at -25.0°C and 65.0atm pressure, what volume in ml of this gas would be needed?
22. Determine the molecular mass of a gas if 2.54g of it fill a 800.0 ml tank at 0.969 atm and 25.0°C .
23. What is the density of oxygen at 28°C and 105.2kPa.
24. 0.25 moles of "A" and 0.75 moles of "B" have a total pressure of 25.0 atm. What is the partial pressure of "A"?
25. A 0.850 L gas at 1.1 atm and 24.0°C is heated to 98.0°C . If the volume increases to 0.910 L, what is the gases pressure?