Ideal Gas Law and Partial Pressures Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ideal Gas Law

1. Write out the formula for Ideal Gas Law \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. If using atm, what is the value for R? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. If using mmHg, what is the value for R? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. If using kPa, what is the value for R? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. The maximum safe pressure that a certain 4.00 L vessel can hold is 3.50 atm. If the vessel contains 0.410 mole of gas, what is the maximum temperature to which the vessel can be subjected?
6. What volume would 3.5 moles of Ar gas occupy at a temperature of 250 K and a pressure of 700 mm of Hg?
7. What is the pressure in atms of a 0.108 mol sample of helium gas at a temperature of 20°C if its volume is 0.505 L?
8. If the pressure exerted by a gas at 25°C in a volume of 0.044 L is 3.81 atm, how many moles of gas are present?

Partial Pressures

1. Explain Dalton’s Law of partial pressures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. If O2 molecules make up 20.5 % of the molecules in the atmosphere, what is the partial pressure of O2 at sea level if the total pressure of the atmosphere at sea level is 14.7 psi?
3. A mixture of neon and argon gases exerts a total pressure of 2.39 atm. The partial pressure of the neon alone is 1.84 atm. What is the partial pressure of the argon?
4. A container holds three gases: oxygen, carbon dioxide, and helium. The partial pressures of the three gases are 2.00 atm, 3.00 atm, and 4.00 atm respectively. What is the total pressure inside the container?
5. A container with two gases, helium and argon, is 30.0% by volume helium. Calculate the partial pressure of helium and argon if the total pressure inside the container is 4.00 atm.
6. The pressure of a mixture of nitrogen, carbon dioxide, and oxygen is 150 kPa. What is the partial pressure of oxygen if the partial pressures of the nitrogen and carbon dioxide are 100 kPA and 24 kPa, respectively?