

Name _____

Period _____

2nd Semester Final Review - Gas Laws

1. What happens to the volume of a gas as the pressure is increased and the temperature is unchanged?
2. How does a decrease in temperature affect the pressure of a gas in a fixed volume container?
3. What does an increase in temperature do to the volume of a gas at constant pressure?
4. Circle the greatest value in each pair
 - a. 60.0°C or 250 K
 - b. 1.5 atm or 750 torr
 - c. 3.5 L or 4500 mL
 - d. 375 K or 10°C
5. Suppose we have a sample of ammonia gas with a volume of 3.5 L at a pressure of 1.68 atm. The gas is compressed to a volume of 1.35 L at a constant temperature. Calculate the final pressure.
6. A sample of methane gas has a volume of 3.8 L at 5.0°C . If the sample is heated to 30.0°C at a constant pressure, what would be the new volume?
7. A sample of gas has a pressure of 345 mm Hg at a temperature of -15°C and a volume of 3.48 L. If conditions are changed so that the temperature is 26°C and the pressure is 468 mm Hg, what will be the volume of the sample?
8. The gaseous product of a reaction is collected in a 25.0 L container at 27°C . The pressure in the container is 216 kPa and the gas has a mass of 96.0 g. What is the molar mass of the gas?
9. A mixture of gases at a total pressure of 145.0 kPa contains N_2 , CO_2 and O_2 . The partial pressure of the N_2 is 28.5 kPa and the partial pressure of the CO_2 is 76.0 kPa. What is the partial pressure of the O_2 ?
10. How many moles of Hydrogen gas are there in 35 L of hydrogen at STP?
11. How many moles of Hydrogen gas are there in 35 L of hydrogen at 2.0 atm and 125°C ?
12. What is the volume of 25.0 g of CO_2 (g) at STP?
13. What is the volume of 25.0 g of CO_2 (g) at 750 torr and 25°C ?
14. Oxygen is often generated in the laboratory by the reaction between sodium peroxide (Na_2O_2) and water, under appropriate conditions. Sodium hydroxide is the other product.
 - a) Write the balanced equation.
 - b) How many grams of Na_2O_2 must be used to generate 1.5 L of oxygen at 25°C and 1.2 atm?