Ch 5/Worksheet/Gases-Gas Laws **Name:**

Introduction

1) Which is not a property of a gas?
   a) Density varies with temperature
   b) Assumes the shape an volume of its container
   c) Are compressible
   d) Density is larger than that of a liquid
   e) Form homogeneous mixtures with one another

2) Hydrogen gas exerts a pressure of 466 torr in a container. What is this pressure in atmospheres (1 atm = 101,325 Pa = 760 torr)? 0.613 atm

Gas Laws

3) A sample of a gas occupies 1.40×10^3 mL at 25°C and 760 mmHg. What volume will it occupy at the same temperature and 380 mmHg? 700 mL

4) A sample of a gas has an initial pressure of 0.987atm and a volume of 12.8 L. What is the final pressure if the volume is increased to 25.6 L? 0.494 atm

5) A sample of nitrogen gas has a volume of 32.4 L at20°C. The gas is heated to 220ºC at constant pressure. What is the final volume of nitrogen? 54.5 L

Combined and Ideal Gas Law

6) If 600. cm^3 of H_2 at 25°C and 750. mm Hg is compressed to a volume of 480. cm^3 at 41°C, what is the new pressure? 988 mmHg

7) At a particular temperature and pressure, 15.0 g of CO_2 occupy 7.16 liters. What is the volume of 12.0 g of CH_4 at the same temperature and pressure? 15.7 L

8) How many liters of methane are there in 8.00 grams at STP? 11.2 L

Application of Gas Laws

9) Calculate the density of chlorine gas at STP. 3.17 g/L

10) What is the molar mass of a gas if 7.00 grams occupy 6.20 liters at 29°C and 760. mm Hg pressure? 28.0g/mol