Name: Date:
Period: Ideal Gas Law Homework #1

Directions: Use the Ideal Gas Law (PV=nRT) to solve each of the following.
              R = 8.31 (L•kPa)/(K•mol) or 0.082 (L•atm)/(K•mol)

1. Calculate the volume 3.00 moles of a gas will occupy at 24.0 °C and 101.3 kPa.

2. How many moles of gas would be present in a gas trapped within a 100.0 mL vessel at
   25.0 °C at a pressure of 2.50 atmospheres?

3. If the number of moles of a gas are doubled at the same temperature and pressure, will
   the volume increase or decrease?

4. At what pressure would 0.150 mole of nitrogen gas at 23.0 °C occupy 8.90 L?

5. Find the volume of 2.40 mol of gas whose temperature is 50.0 °C and whose pressure
   is 202 kPa.

6. How many moles of gas are contained in a 50.0 L cylinder at a pressure of 10100 kPa
   and a temperature of 35.0 °C?

7. Determine the number of grams of carbon dioxide in a 450.6 mL tank at 1.80 atm and
   minus 50.5 °C. Determine the number of grams of oxygen that the same container will
   contain under the same temperature and pressure.

8. A sample of argon gas at STP occupies 56.2 liters. Determine the number of moles of
   argon and the mass in the sample.

9. A 30.6 g sample of gas occupies 22.4 L at STP. What is the molecular weight of this
   gas? Think about it!!!!!

10. How many moles of a gas would be present in a gas trapped within a 37.0 liter vessel
    at 80.00 °C at a pressure of 2.50 atm?