**Ideal Gas Equation** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PV=nRT** Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Hr \_\_\_\_

1. Make a rough sketch of the graph that relates moles of gas to volume.

Volume

Moles (n)

1. What is the volume of one mole of any gas at STP?

\_\_\_\_\_\_\_\_\_\_\_\_\_L = \_\_\_\_\_\_\_\_\_\_\_\_\_\_mL = \_\_\_\_\_\_\_\_\_\_\_\_\_\_cm3

1. How many moles of gas are in a 400.0 cm3 container at STP?
2. How many moles of gas will occupy a 5.00 L container at STP?
3. How many moles of gas will occupy a 5.00 L vessel at 25.0° C and 96.7 kPa?
4. What volume will be occupied by 0.362 mol of a gas at 100.3 kPa and 8.00°C?
5. What is the temperature of a gas if 0.0450 moles are contained in a 604 mL vessel at 980 torr?
6. What pressure is exerted by 0.0306 mol of a gas in an 859 mL container at 9.00°C?
7. Nitrogen, N2, is sometimes used to fill tires on cars. (Completely unnecessary for everyday street use. Don’t pay extra for it.) What mass of N2 is needed to fill a 50.0L tire to a pressure of 240 kPa at 25.0°C?
8. What is the molar mass of a gas if 8.11 g of it occupy 2.38 L at 109 kPa and 10°C?
9. A flask has a volume of 258mL. A gas with a mass of 1.48g fills the flask at a temperature of 302K and a pressure of 98.0kPa. Calculate the molar mass of the gas.
10. Calculate the molar mass of methane if 0.179g of methane occupies 250mL at STP.
11. What is the molar mass of a gas if 5.75g of the gas occupy a volume of 358mL at 95.5kPa and 52.0°C?
12. What is the temperature of a gas if 55.0 grams of gas with a molar mass of 46.0g/mol has a pressure of 1.25atm in a 25.0L tank?
13. What is the density of CO2 at 745mm Hg and 65.0°C?
14. The density of a sample of phosphorus trifluoride is 3.67g/L. What is the molar mass of the gas at 15.0°C and 750torr?