

WKS
Ideal Gas Law

NAME _____
Period _____ **Date** _____

$$PV = nRT$$

P is pressure, in atm or kPa
V is volume in liters (L)

n is number of moles

R is the ideal gas constant = $0.08206 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}} = 8.314 \frac{\text{L}\cdot\text{kPa}}{\text{mol}\cdot\text{K}}$

T is temperature in Kelvin (K)

- 1) A student collects 425 mL of oxygen at a temperature of 24°C and a pressure of 0.899 atm. How many moles of O₂ did she collect? [remember to convert volume to L and temperature to K!]
- 2) What is the volume of 1.50 moles of an ideal gas at 25°C and a pressure of 0.915 kPa?
- 3) What pressure, in atm, will 1,360 g of N₂O gas [convert to moles!] exert on its cylinder with volume of 25.0 L if stored in a shed whose temperature reaches 59°C in the summer?
- 4) A tank with a volume of 658 mL contains 1.50 g of Ne gas at a pressure of 450. kPa. What is the temperature of the gas, in °C?
- 5) What mass of boron trifluoride gas will occupy a volume of 18.5 L at a temperature of 78.0°C and a pressure of 925 mmHg? [Think: what do you need to convert!?!]

- 6) How many grams of gas are present in a sample that has a molar mass of 70.0 g/mol and occupies a 2.00-L container at 117 kPa and 35.1°C?
- 7) A student measures that 12.18 grams of a gas has a volume of 2.75 L at 714 torr and 125°C?
- How many moles of gas were present?
 - What is the molar mass of the gas?
- 8) A sample of gas has a density of 1.09 g/L at 1.02 atm pressure and 25.0°C.
- How many moles of gas are present?
 - What is the molar mass of the gas?