

Gas Laws Summary Table

Name of Law	Equation/Definition	Type of Relationship	Constant
Dalton's Law		----	----
Graham's Law			----
Boyle's Law			T
*Charles's Law			P
*Gay-Lussac's Law			V
*Combined Gas Law		----	----
Avogadro's Law			----
*Ideal Gas Law		----	$R = 0.0821 \frac{\text{atm} \cdot \text{L}}{\text{mol} \cdot \text{K}}$ $= 8.315 \frac{\text{kPa} \cdot \text{L}}{\text{mol} \cdot \text{K}}$

***Note: TEMPERATURES MUST BE IN KELVIN!!!**

STP =

Combined Gas Law-

Examples:

1. A helium-filled balloon has a volume of 50.0L at 25°C and 1.08 atm. What volume will it have at 0.855 atm and 10. °C?

List all variables. *Convert temp to K	Write the formula of the appropriate Gas Law Plug & Chug	Final Answer
Known:		
Unknown:		

2. The volume of a gas is 27.5mL and is at 22.0°C and 150,000Pa. What will the temperature be at 120,000 Pa and 30.4mL?

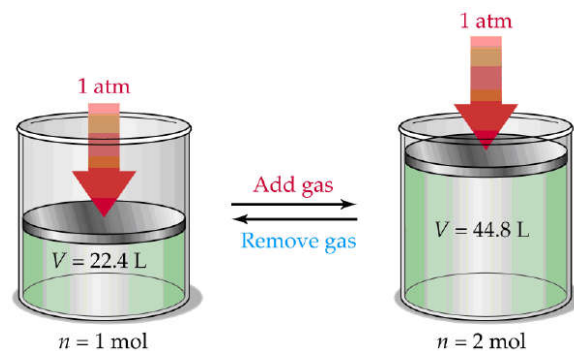
List all variables. *Convert temp to K	Write the formula of the appropriate Gas Law Plug & Chug	Final Answer
Known:		
Unknown:		

3. A 700.mL sample at STP is compressed to a volume of 200.mL, and the temperature is increased to 30.0 °C. What is the new pressure of the gas in atm?

List all variables. *Convert temp to K	Write the formula of the appropriate Gas Law Plug & Chug	Final Answer
Known:		
Unknown:		

Avogadro's Law-

-
-
-



As volume increase, the number of moles _____.

Molar volume-

-
-
- If you have one mole each of O_2 and H_2 , they will have the _____ volume and _____ masses.

Examples:

1. A chemical reaction produces 0.0680 mol of O_2 gas. What volume in liters is occupied by this gas sample at STP?
2. At STP, what is the volume of 7.08 mol of nitrogen gas?
3. At STP, a gas occupies 1.84 L of space. How many moles of gas are present?
4. What volume will 0.524 moles of N_2 gas occupy at STP?