Noteset 7C (Part 1) - In Class Noteset
Ideal Gas Law

Fundimental gas law review

Boyle's Law

P / V	$P_1V_1 = P_2V_2$
T constant	Indirect

Gay-Lussac's Law

P / T	$P_1T_2 = P_2T_1$
V constant	Direct

Charles' Law

V / T	$V_1T_2 = V_2T_1$
P constant	Direct

Combined Law

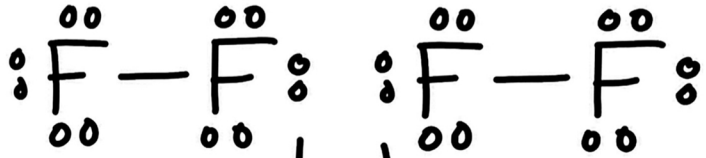
P V / T	$P_1V_1T_2 = P_2V_2T_1$
	Direct and Indirect

Ideal gas law

Ideal gas

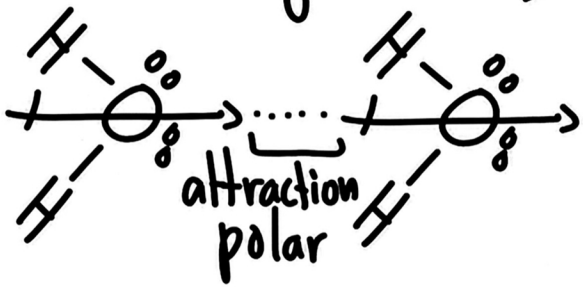
A gas that follows the fundimental gas laws and have weak intermolecular forces (non-polar) and are small in size.

Ideal gas (F_2)



non-polar no attraction

Non-Ideal gas (H_2O)



Ideal Gas Law

Gas law that adds number of particles (mol, n) to the fundimental gas laws variables (P, V, and T)

$$PV = nRT$$

R is the ideal gas constant

$$R = 0.0821 \frac{L \cdot atm}{mol \cdot K}$$

Combined gas

$$k = \frac{PV}{T}$$

(constant)

Ideal gas

$$R = \frac{PV}{nT}$$

(constant)

Solving w/ Ideal gas

$$P = \frac{nRT}{V} \qquad V = \frac{nRT}{P}$$

$$n = \frac{PV}{RT} \qquad T = \frac{PV}{nR}$$

$$R = 0.0821 \frac{L \cdot atm}{mol \cdot K}$$

$P = 6.39 atm$ $V = 21.82 L$

$T = 428.43 K$ $n = \_\_\_\_ mol$

$$n = \frac{PV}{RT}$$

$$n = \frac{6.39 \cancel{atm} \cdot 21.82 L}{0.0821 \frac{L \cdot \cancel{atm}}{mol \cdot \cancel{K}} \cdot 428.43 \cancel{K}}$$

$n = 3.96 mol$ $(n : 0.1 \approx 20)$