Classwork

Gas laws:
Boyle's law

Gas is char. by:

Volume → measures how much space the gas occupies

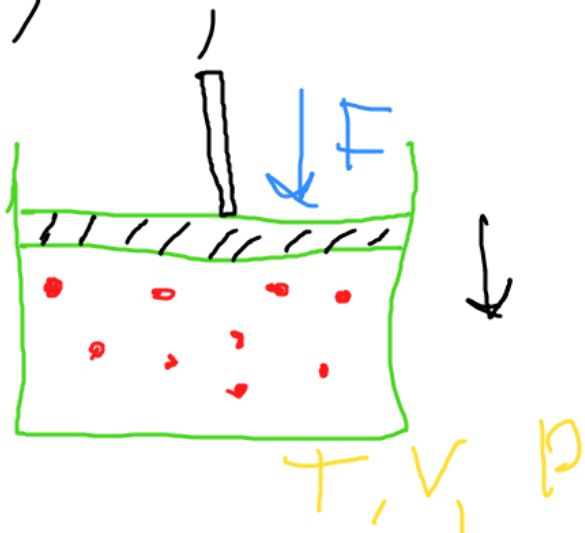
Pressure → measures the force from gas on the walls

Temperature → m. int. KE of molecules

We fix the N → number of molecules

So $$\rho = \frac{m}{V} = \text{const}$$

p, V, T are not independent!



$F = p \cdot A$

$V \downarrow$

3 Laws:

Relationships:

1) $T = \text{const} \rightarrow p, V$
2) $V = \text{const} \rightarrow p, T$
3) $p = \text{const} \rightarrow V, T$

Boyle's law: $T = \text{const.}$

$\rightarrow$ isothermal process

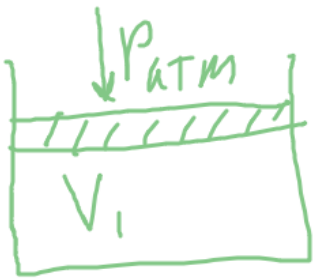
$$p_1 \cdot V_1 = p_2 \cdot V_2$$

$$\frac{p_1}{p_2} = \frac{V_2}{V_1}$$

$V \downarrow \Rightarrow p \uparrow$

$V \uparrow \Rightarrow p \downarrow$

Ex 1.



$P_1 = P_{atm} = 10^5\ Pa$

$V_1 = 100\ cm^3$

$P_2 = 2 \cdot 10^5\ Pa$, $V_2 = ?$

$$V_2 = \frac{P_1}{P_2} \cdot V_1 = \frac{1}{2} \cdot 100 cm^3 = 50 cm^3$$