

4 variables used to describe a gas
volume, pressure, amount of particles, Temperature
(moles)

① volume - size of the container
(V) Liters - L

② moles - # of particles
(n) mol

③ Temperature - how fast the gas particles
(T) are moving

Kelvin (K)

$$\text{--- K} = \text{---}^{\circ}\text{C} + 273.15$$

$$25^{\circ}\text{C} \rightarrow \text{--- K}$$

298 K

Absolute zero 0 K or -273.15°C

↳ no movement

④ Pressure - collisions

Units



$$1 \text{ atm} = 760 \text{ mm Hg} = 760 \text{ torr} = 101.3 \text{ kPa} = 14.7 \text{ psi}$$

$$103 \text{ atm} \rightarrow \text{_____ psi}$$

$$103 \text{ atm} \times \frac{14.7 \text{ psi}}{1 \text{ atm}} = \frac{1514}{1} \text{ psi}$$

$$56 \text{ kPa} \rightarrow \text{_____ mm Hg}$$

$$56 \text{ kPa} \times \frac{760 \text{ mm Hg}}{101.3 \text{ kPa}} = 420 \text{ mm Hg}$$

How are the 4 variables related

$P + n$



directly
proportional

$P + V$



inversely
 $\propto 10$

$P + T$

directly



cold



hot

V + T
directly,

