

BOYLE'S LAW:

At constant temperature, the volume of a given mass of gas is inversely proportional to the pressure.

$$\text{if } T = \text{const} , \quad V \propto \frac{1}{P}$$

$$V = \frac{k}{P} \Rightarrow \boxed{PV = k} \text{ --- (1)}$$

CHARLE'S LAW:

At constant pressure, the volume of a given mass of gas is directly proportional to its absolute temperature.

$$\text{if } P = \text{const} ; \quad V \propto T \Rightarrow V = kT$$

$$\boxed{\frac{V}{T} = k} \text{ --- (2)}$$