The Combined Gas Law

Mr. Sudbury

Review

- Boyle's Law
  - The relationship between P & V
  - INVERSE = When P goes up V goes down
  - T is constant
- Charles's Law
  - The relationship between V & T
  - DIRECT = When V goes up, T goes up
  - P is constant

Review: Boyle's and Charles's Law

- Boyle's Law

$$P_1V_1 = P_2V_2$$

- Charles's Law

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

The Combined Gas Law

- The Combined gas law expresses the relationship between pressure, volume, and temperature of a fixed amount of gas.

$$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

- This is an overlap of both Boyle's Law and Charles's Law

Combined Gas Law Practice

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

The End

- The combined gas law combines Boyle's Law and Charles's Law and describes the relationship between the volume, temperature and pressure.