N26 - Ideal Gases and Laws

Ideal Gas Law

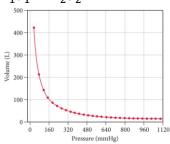
$$PV = nRT$$

Molar Mass Kitty

$$M = \frac{DRT}{P}$$

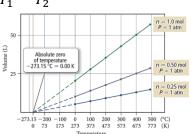
Boyle's Law

$$P_1V_1 = P_2V_2$$



Charles's Law

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



Gay-Lussac's Law

$$\frac{P}{T_1} = \frac{P_2}{T_2}$$

$$\frac{P}{T_1} = \frac{P_2}{T_2}$$

$$\frac{6.0}{5.0}$$

$$\frac{1.00}{0} = \frac{200 \times 300 \times 400 \times 500}{100 \times 200 \times 300 \times 400 \times 500}$$
Temperature (K)

Avogadro's Law

$$\frac{V_1}{n_1} = \frac{V_2}{n_2}$$

$$\frac{V_1}{n_2} = \frac{V_2}{n_2}$$

$$\frac{V_1}{v_2} = \frac{v_2}{v_2}$$

Dalton's Partial Pressure

Number of moles (n)

$$P_{total} = P_1 + P_2 + \cdots$$

Mole Fraction

$$X_a = \frac{n_a}{n_{total}} \quad P_a = X_a P_{total}$$

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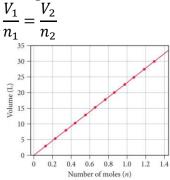
Charles's Law

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$
Absolute zero of temperature 273.15 °C = 0.00 K
$$\frac{V_1}{V_2} = \frac{V_2}{T_2}$$

$$\frac{Absolute zero of temperature}{V_2} = \frac{V_2}{T_2}$$

-273.15 -200 -100 0 100 200 300 400 500 (°C) 0 73 173 273 373 473 573 673 773 (K)

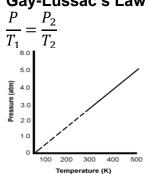
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Avogadro's Law

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Gay-Lussac's Law



Dalton's Partial Pressure

$$P_{total} = P_1 + P_2 + \cdots$$

Mole Fraction

$$X_a = \frac{n_a}{n_{total}} \quad P_a = X_a P_{total}$$