

CHEM 121O (Rowley)

Exam 4 Equations (Chapters 7-9) Fall 2025

Formulas

$$\Delta H_{rxn} = \sum_{Broken} n \cdot \Delta H_{Bond} - \sum_{Formed} n \cdot \Delta H_{Bond}$$

$$Bond\ Order = \frac{n_{bonding} - n_{antibonding}}{2}$$

$$P_A = \chi_A P_{total}$$

$$\frac{rate_A}{rate_B} = \sqrt{\frac{M_B}{M_A}}$$

$$Z = \frac{PV_{molar}}{RT}$$

$$\mu_{rms} = \sqrt{\frac{3RT}{M}}$$

$$PV = nRT$$

$$P_{total} = \sum_{i=gas} P_i$$

$$\chi_A = \frac{n_A}{n_{total}}$$

$$K.E. = \frac{3}{2}RT$$

$$P = \frac{nRT}{V - nb} - \frac{n^2a}{V^2}$$

$$\left(P + \frac{n^2a}{V^2} \right) (V - nb) = nRT$$

Constants

$$R = 8.314 \frac{J}{mol\ K}$$

$$R = 0.08206 \frac{L\ atm}{mol\ K}$$

Periodic Table of the Elements