

Test 1 Equations

Chapter 10

$$q = mc\Delta T$$

$$\ln\left(\frac{P_2}{P_1}\right) = \frac{\Delta H_{\text{vap}}}{R} \left(\frac{1}{T_1} - \frac{1}{T_2}\right)$$

Chapter 11

$$C_{\text{gas}} = k_H \times P_{\text{gas}}$$

$$M = \text{Molarity} = \frac{\text{moles of solute}}{\text{L of solution}}$$

$$X_A = \text{Mole fraction} = \frac{\text{moles of one component}}{\text{moles of all components}}$$

$$m = \text{Molality} = \frac{\text{moles of solute}}{\text{kg of solvent}}$$

$$P_A = X_A P^\circ_A$$

$$P_{\text{solution}} = \sum_i P_i = \sum_i X_i P^\circ_i$$

Chapter 12

For the reaction, $a A + b B \rightarrow g G + h H$

$$\text{rate of reaction} = -\frac{1}{a} \frac{\Delta[A]}{\Delta t} = -\frac{1}{b} \frac{\Delta[B]}{\Delta t} = \frac{1}{g} \frac{\Delta[G]}{\Delta t} = \frac{1}{h} \frac{\Delta[H]}{\Delta t}$$

$$\text{Relative rate of A} = \frac{\Delta[A]}{\Delta t} = -a (\text{rate of reaction})$$

$$\text{Relative rate of G} = \frac{\Delta[G]}{\Delta t} = -g (\text{rate of reaction})$$

$$\text{rate} = k[A]^m[B]^n \dots$$

$$\left(\frac{[A]_i}{[A]_j}\right)^m = \frac{\text{rate}_i}{\text{rate}_j}$$