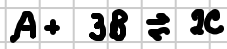


Lecture 8.3 Equilibrium Constant Manipulations & Recipes

Note Title

9/19/2011

1) Reversal



L.M.A $K_{eq} = \frac{[C]^2}{[A][B]^3}$

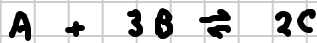


L.M.A $K_{eq} = \frac{[A][B]^3}{[C]^2}$

$$K_{eq} = \frac{1}{K_{eq}}$$

reverse rxn reciprocal of K_{eq} .

2) Multiplying Coef.



L.M.A

$$K_{eq} = \frac{[C]^2}{[A][B]^3}$$



L.M.A

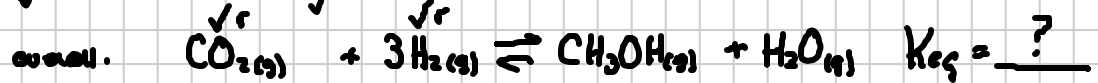
$$K_{eq}' = \frac{[C]^{2n}}{[A]^n [B]^{3n}} = \left(\frac{[C]^2}{[A][B]^3} \right)^n$$

$$K_{eq}' = K_{eq}^n$$

...raise the old K_{eq} by n

3) Simultaneous equilibria.

Det K_{eq} for the following reaction:



Given:



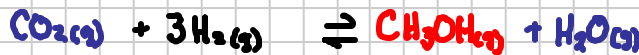
$$K_{eq} = 1.0 \times 10^5$$



$$K_{eq} = 1.4 \times 10^7$$



$$K_{eq}' = \frac{1}{K_{eq}} = \frac{1}{1.0 \times 10^5} = 1 \times 10^{-5}$$



$$K_{eq} = \underline{\quad}$$

$$K_{eq} = K_{eq} \cdot K_{eq}'$$

$$K_{eq} = (1.4 \times 10^7)(1 \times 10^{-5})$$

$$K_{eq} = 1.4 \times 10^2$$