

AP CHEM

EQUILIBRIUM CONSTANT

REVIEW



K = ratio of products at equilibrium

- forward & reverse rates are equal



→ pure solids & liquids are left out

→ for gases, use partial pressure instead of concentration

SIZE OF K

- $K \gg 1$, equilibrium favours **PRODUCTS**
- $K \ll 1$, equilibrium favours **REACTANTS**
- $K \approx 1$, significant amts of both present

Q VS K

Q (reaction quotient) : calculated the same way as K , but reaction is not necessarily at equilibrium

→ $Q < K$, reaction will shift **FORWARD**

→ $Q > K$, reaction will shift **REVERSE**

→ $Q = K$, reaction at equilibrium

OTHER RULES

- Reversing a reaction: new $k = \frac{1}{k}$ (original)
- Multiplying all coefficients by n : raise k to the power of n
- Adding reactions: multiply k 's together

AP CHEM

LE CHATELIER'S PRINCIPLE PT 1

REVIEW



TEMPERATURE

Exothermic rxn: $A + B \rightleftharpoons C + \text{heat}$

→ increasing temp adds heat, so
eq shifts left to use more heat

→ decreasing temp removes heat, so
eq shifts right to produce heat

Endothermic rxn: $A + B + \text{heat} \rightleftharpoons C$

→ increasing temp adds heat, so
eq shifts right to use more heat

→ decreasing temp removes heat, so
eq shifts left to produce heat

PRESSURE

→ Increase in pressure will shift eq to the side w/ fewer mols of gas to decrease total particles

→ Decrease in pressure will shift eq to the side w/ more mols of gas to increase total particles

★ if mols gas = on both sides, no change occurs

CONCENTRATION



→ removing reactant shifts eq

to the left to replenish them

↳ removing product shifts eq right

→ adding product shifts eq to the left to use added product up

↳ adding reactant shifts eq right

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more !**



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