AP CHEMISTRY CHAPTER 13 OUTLINE

CHEMICAL EQUILIBRIUM

13.1: THE EQUILIBRIUM CONDITION

H2O(g) + CO(g) ↔ H2(g) + CO2(g)





The Characteristics of Chemical Equilibrium

N2(g) + 3H2(g) ↔ 2NH3(g)

13.2: THE EQUILIBRIUM CONSTANT

The law of mass action

The equilibrium expression

Manipulating the K for a reaction

jA + kB ↔ lC + mD

forward

reverse

original multiplied by some factor n

Summary of equilibrium expressions

1.

2.

3.

Equilibrium position

13.3: EQUILIBRIUM EXPRESSIONS INVOLVING PRESSURES

How are K and Kp related

Converting Kp to K

13.4: HETEROGENEOUS EQUILIBRIUM

13.5: APPLICATIONS OF THE EQUILIBRIUM CONSTANT

K Predicts

1.

2.

3.

Extent of a reaction

Reaction Quotient (Q)

Comparing K and Q

1. Q = K
2. Q > K
3. Q < K

Calculating Equilibrium Pressures and Concentrations

13.6: SOLVING EQUILIBRIUM PROBLEMS

1.

2.

3.

4.

5.

6.

7.

Treating systems that have small equilibrium constants

13.7: LE CHATELIER’S PRINCIPLE

Effect of change in concentration

The Effect of a Change in Pressure

1.

2.

3.

The Effect of a Change in Temperature