Note Taking Guide: Episode Episode 1202 **Name_____**

A reaction in which the _____ can react to form the _____ is called a _____ reaction.

$$A + B \;\square\; C + D$$

Chemical _____ occurs when the _____ in a _____ reaction form _____ at the same _____that _____ form _____.

At equilibrium:

- the _____ of the reactants and products does not _____.
- the concentration of reactants can be _____ to, _____, or _____ the concentration of the products.

$$\_\_\_\_ A + \_\_\_\_ B \rightleftharpoons \_\_\_\_\_ C + \_\_\_\_\_ D$$

$$K_{eq} = \frac{[\ ]^c[\ ]^d}{[\ ]^a[\ ]^b}$$

If K_{eq} is	**_____ reaction is favored**
= 1	neither
< 1	
> 1	

Ex. #1: Calculate K_{eq} for the following reaction using the given equilibrium concentrations. Then determine whether the forward or reverse reaction is favored.

$N_2O_4 \rightleftharpoons 2\ NO_2$ $[N_2O_4] = 0.23M$ $[NO_2] = 0.037M$

Ex. #2: Calculate K_{eq} for the following reaction using the given equilibrium concentrations. $N_2 + 3\ H_2 \rightleftharpoons 2\ NH_3$

$[N_2]$ = _____ $[H_2]$ = _____ $[NH_3]$ = _____

The _____ reaction is favored.

LeChatelier's Principle:

When a _____ is applied to a system in equilibrium, the system reacts in a way to _____ the stress.

STRESS	SYSTEM WILL SHIFT
addition of a chemical	
removal of a chemical	
increase in temperature	
decrease in temperature	
* increase in pressure	
* decrease in pressure	
addition of a catalyst	

* applies to reactions involving gases only

examples: $N_2\ (g) + 3\ H_2\ (g) \rightleftharpoons 2\ NH_3\ (g)$ + heat

- When H_2 is added to the system, the reaction shifts to the _____ to use up the extra H_2. The amount of _____ produced will increase.
- What if _____ is removed, the reaction shifts to the _____ trying to replenish the N_2.
- When the temperature increases, the reaction shifts to the _____.
- When the pressure of the system increases, the reaction shifts to the _____, toward the side with _____ particles.
- When a catalyst is added _____.

When an equilibrium system shifts to the:	[products]	[reactants]
right		
left		

The Chemistry Quiz

CR1. CR2.

1. 2. 3. 4. 5.