Name:_____

Acids/Bases and Chemical Equilibrium
Remediation Video Assignment

Acids, Bases & Conjugates

Identify the following compounds as acids, bases, conjugate acid or conjugate base

$KOH + HNO_3 \Rightarrow KNO_3 + H_2O$

____ ____ ____ ____

$HCl + H_2O \Rightarrow Cl^- + H_3O^+$

____ ____ ____ ____

$NH_3 + H_2SO_4 \Rightarrow SO_4^{-2} + NH_4^+$

____ ____ ____ ____

LeChatelier's Principle

Use arrows to indicate how the indicated changes will effect the concentration of the following substances:

$2\ C_2H_6 + 7\ O_2 \Rightarrow 4\ CO_2 + 6\ H_2O + heat$

Change = increase $[O_2]$

$[C_2H_6]$ _____

heat _____

$[CO_2]$ _____

$2\ H_2O + heat \Rightarrow 2H_2 + O_2$

Change = decrease $[H_2]$

temperature _____

$[H_2O]$ _____

$[O_2]$ _____

$Br_2 + CaCl_2 \Rightarrow Cl_2 + CaBr_2 + heat$

Change = increase heat

$[CaBr_2]$ _____

$[CaCl_2]$ _____

$[Cl_2]$ _____

Reaction Rates and Collision Theory

Indicate if the following changes will increase or decrease the rate of the reaction and then explain why based on the collision theory of reaction rates. Use the terms frequency and magnitude of collisions.

Dilute the reactants

Increase temperature

Take the reactant powder and form it into a round ball

Add a catalyst

Add another substance which precipitates a reactant, removing it from solution

Chemical Equilibrium

At equilibrium, the following reaction reaches these concentrations: 0.520M SO_3, 0.750M SO_2 and 0.430M O_2.

$$2SO_3 \rightleftharpoons 2SO_2 + O_2$$

Write the K_c expression for the reaction

Calculate the K_c value for this reaction

At equilibrium, does this reaction favor reactants or products? Explain your reasoning