Name _____ Period _____

Conjugate Acid/Base Pairs

1) What is the difference between an acid and a base?

2) What are the six strong acids?

3) Identify the following as either an acid or a base:

HCl	_____	NaOH	_____	H_3N	_____
HBr	_____	$Ca(OH)_2$	_____	H_2S	_____
HI	_____	H_2SO_4	_____	LiOH	_____
RbOH	_____	$Mg(OH)_2$	_____	KOH	_____
HF	_____	$HClO_4$	_____	NH_3	_____

4) Complete the following acid dissociation equations:

$HCl(aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____
$HF(aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____
$HC_2H_3O_2(aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____
$H_2CO_3(aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____
$H_3PO_4\ (aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____

5) Complete the following base dissociation equations:

$NH_3(aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____
$F^-\ (aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____
$NH_2^-(aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____
$CH_3NH_2(aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____
$ClO_4^-(aq)$	+	$H_2O(l) \leftrightarrows$	_____	+	_____

6) Which of the following represent conjugate acid base pairs?

HCl and Cl^-	_____	H_2SO_4 and HSO_4^-	_____
H_2CO_3 and NaOH	_____	H_2SO_4 and SO_4^{2-}	_____
H_2CO_3 and HCO_3^-	_____	SO_4^{2-} and HSO_4^-	_____
H_2CO_3 and CO_3^{2-}	_____	HBr and BrO_3^-	_____
$HClO_4$ and Cl^-	_____	NH_3 and NH_4^+	_____

7) What is the conjugate base of:

HCl _____

HBr _____

HF _____

$HC_2H_3O_2$ _____

NH_4^+ _____

8) What is the conjugate acid of:

NH_3 _____

I^- _____

CO_3^{2-} _____

NH_2^- _____

HSO_4^- _____

9) Is the conjugate of the following species a relatively strong or weak species?

HBr _____

HF _____

$HC_2H_3O_2$ _____

NH_2^- _____

HSO_4^- _____

10) Write the equation for the reactions of the following species with water and identify the conjugate acid base pairs for:

HCl

NH_3

NH_4^+

I^-

HCO_3^-