POTENTIALLY USEFUL INFORMATION

$pH = -\log[H^+]$ $\quad pOH = -\log[OH^-]$ $\quad pH + pOH = 14$ $\quad pK_a = -\log K_a$

$[H^+] = 10^{-pH}$ $\quad [OH^-] = 10^{-pOH}$ $\quad K_w = 10^{-14} = K_a \cdot K_b$ $\quad K_a = 10^{-pKa}$

K_a Table

(Acid)		(Base)	K_a
$HClO_4$	⇆	$H^+ + ClO_4^-$	very large
HI	⇆	$H^+ + I^-$	large
HBr	⇆	$H^+ + Br^-$	large
HCl	⇆	$H^+ + Cl^-$	large
HNO_3	⇆	$H^+ + NO_3^-$	large
H_2SO_4	⇆	$H^+ + HSO_4^{2-}$	large
H_3O^+	⇆	$H^+ + H_2O$	1.0
$HOOCCOOH$	⇆	$H^+ + HOOCCOO^-$	5.9×10^{-2}
H_2SO_3	⇆	$H^+ + HSO_3^-$	1.5×10^{-2}
HSO_4^-	⇆	$H^+ + SO_4^{2-}$	1.2×10^{-2}
H_3PO_4	⇆	$H^+ + H_2PO_4^-$	7.5×10^{-3}
$Fe(H_2O)_6^{3+}$	⇆	$H^+ + Fe(H_2O)_5(OH)_2^{2+}$	6.0×10^{-3}
HF	⇆	$H^+ + F^-$	3.5×10^{-4}
HNO_2	⇆	$H^+ + NO_2^-$	5.1×10^{-4}
$HCOOH$	⇆	$H^+ + HCOO^-$	1.7×10^{-4}
$Cr(H_2O)_6^{3+}$	⇆	$H^+ + Cr(H_2O)_5(OH)^{2+}$	1×10^{-4}
C_6H_5COOH	⇆	$H^+ + C_6H_5COO^-$	6.5×10^{-5}
$HCOOCOO^-$	⇆	$H^+ + (OOCCOO)^{2-}$	6.4×10^{-5}
CH_3COOH	⇆	$H^+ + CH_3COO^-$	1.76×10^{-5}
$Al(H_2O)_6^{3+}$	⇆	$H^+ + Al(H_2O)_5(OH)^{2+}$	1×10^{-5}
H_2CO_3	⇆	$H^+ + HCO_3^-$	4.3×10^{-7}
HSO_3^-	⇆	$H^+ + SO_3^{2-}$	1.02×10^{-7}
H_2S	⇆	$H^+ + HS^-$	9.1×10^{-8}
$H_2PO_4^-$	⇆	$H^+ + HPO_4^{2-}$	6.23×10^{-8}
H_3BO_3	⇆	$H^+ + H_2BO_3^-$	7.3×10^{-10}
NH_4^+	⇆	$H^+ + NH_3$	5.7×10^{-10}
HCN	⇆	$H^+ + CN^-$	4.9×10^{-10}
C_6H_5OH	⇆	$H^+ + CN^-$	1.3×10^{-10}
HCO_3^-	⇆	$H^+ + CO_3^{2-}$	5.6×10^{-11}
H_2O_2	⇆	$H^+ + HO_2^-$	2.4×10^{-12}
HPO_4^{2-}	⇆	$H^+ + PO_4^{3-}$	2.2×10^{-12}
HS^-	⇆	$H^+ + S_2^-$	1.1×10^{-12}
H_2O	⇆	$H^+ + OH^-$	1.0×10^{-14}

Strong acids;
Conjugates that
do not behave as bases

Moderate acids

Weak acids;
Conjugates are bases;
The weaker the acid,
the stronger the
conjugate base