

Substance	Concentration	Ka	Kb	[H+]	[OH-]	pH	pOH
HA	0.1 M	Strong	"----"	1.00E-01 M	1.00E-13 M	1	13
NaOH	0.01 M	"----"	Strong	1.00E-12 M	1.00E-02 M	12	2
HA	0.01 M	1.00E-04	1.00E-10	1.00E-03 M	1.00E-11 M	3	11
NaA	1 M	1.00E-04	1.00E-10	1.00E-09 M	1.00E-05 M	9	5
HA	0.0001 M	1.00E-02	1.00E-12	1.00E-03 M	1.00E-11 M	3	11
KA	0.1 M	1.00E-03	1.00E-11	1.00E-08 M	1.00E-06 M	8	6
B	1 M	1.00E-10	1.00E-04	1.00E-12 M	1.00E-02 M	12	2
(BH)Cl	0.01 M	1.00E-10	1.00E-04	1.00E-06 M	1.00E-08 M	6	8
HA	0.001 M	Strong	"----"	1.00E-03 M	1.00E-11 M	3	11
Ba(OH) <sub>2</sub>	0.5 M	"----"	Strong	1.00E-14 M	1.00E+00 M	14	0
HA	0.01 M	Strong	"----"	1.00E-02 M	1.00E-12 M	2	12
HA	0.01 M	1.00E-06	1.00E-08	1.00E-04 M	1.00E-10 M	4	10
NaA	1 M	1.00E-06	1.00E-08	1.00E-10 M	1.00E-04 M	10	4
B	0.001 M	1.00E-09	1.00E-05	1.00E-10 M	1.00E-04 M	10	4
(BH)NO <sub>3</sub>	0.1 M	1.00E-11	1.00E-03	1.00E-06 M	1.00E-08 M	6	8
HA	1 M	1.00E-04	1.00E-10	1.00E-02 M	1.00E-12 M	2	12

To Find

$$[H+] = (Ca * Ka)^{0.5}$$

$$[OH-] = (Cb * Kb)^{0.5}$$

$$pH = -\text{Log}(H+)$$

$$pOH = -\text{Log}(OH)$$

$$10^{-14} = Ka * Kb$$

$$14 = pH + pOH$$

Substance	Short	Concentration	Ka	Kb	[H+]	[OH-]	pH	pOH
Acetic Acid	HA	1.0E-01 M	1.80E-05	5.56E-10	1.34E-03 M	7.45E-12 M	2.9	11.1
Nitric Acid	HA	4.0E-03 M	Strong	"----"	4.00E-03 M	2.50E-12 M	2.4	11.6
KOH	B	2.0E-02 M	"----"	Strong	5.00E-13 M	2.00E-02 M	12.3	1.7
Sodium Benzoate	A-	3.0E-01 M	6.40E-05	1.56E-10	1.46E-09 M	6.85E-06 M	8.8	5.2
Ammonia	B	2.0E-03 M	5.56E-10	1.80E-05	5.27E-11 M	1.90E-04 M	10.3	3.7
Ethyl Amine	B	1.0E-01 M	1.79E-11	5.60E-04	1.34E-12 M	7.48E-03 M	11.9	2.1
Formic Acid	HA	1.0E-01 M	1.80E-04	5.56E-11	4.24E-03 M	2.36E-12 M	2.4	11.6
Potassium Formate	A-	1.0E-02 M	1.80E-04	5.56E-11	1.34E-08 M	7.45E-07 M	7.9	6.1
HF	HA	1.0E-03 M	6.30E-04	1.59E-11	7.94E-04 M	1.26E-11 M	3.1	10.9
CaF <sub>2</sub>	A-	5.0E-01 M	6.30E-04	1.59E-11	3.55E-09 M	2.82E-06 M	8.4	5.6
(NH <sub>4</sub> )Cl	HA	1.0E-02 M	5.56E-10	1.80E-05	2.36E-06 M	4.24E-09 M	5.6	8.4
Nitrous Acid	HA	1.0E-02 M	4.00E-04	2.50E-11	2.00E-03 M	5.00E-12 M	2.7	11.3
K(CH <sub>3</sub> COO)	A-	2.0E-02 M	1.80E-05	5.56E-10	3.00E-09 M	3.33E-06 M	8.5	5.5
HCl	HA	1.0E-04 M	Strong	"----"	1.00E-04 M	1.00E-10 M	4.0	10.0