Introduction to pH and pOH

[H+] mol/L (expanded format)	[H+] mol/L (scientific notation)	pH (- log [H+])	[OH-] mol/L (expanded format)	[OH-] mol/L (scientific notation)	pOH (- log [OH-])	pH + pOH	[H+] x [OH-]
1.0	1.0×10^{0}	0	0.00000000000001	1.0×10^{-14}	14	14	1.0×10^{-14}
0.1	1.0×10^{-1}	1	0.0000000000001	1.0×10^{-13}	13	14	1.0×10^{-14}
0.01	1.0×10^{-2}	2	0.000000000001	1.0×10^{-12}	12	14	1.0×10^{-14}
0.001	1.0×10^{-3}	3	0.00000000001	1.0×10^{-11}	11	14	1.0×10^{-14}
0.0001	1.0×10^{-4}	4	0.0000000001	1.0×10^{-10}	10	14	1.0×10^{-14}
0.00001	1.0×10^{-5}	5	0.000000001	1.0×10^{-9}	9	14	1.0×10^{-14}
0.000001	1.0×10^{-6}	6	0.00000001	1.0×10^{-8}	8	14	1.0×10^{-14}
0.0000001	1.0×10^{-7}	7	0.0000001	1.0×10^{-7}	7	14	1.0×10^{-14}
0.00000001	1.0×10^{-8}	8	0.000001	1.0×10^{-6}	6	14	1.0×10^{-14}
0.000000001	1.0×10^{-9}	9	0.00001	1.0×10^{-5}	5	14	1.0×10^{-14}
0.0000000001	1.0×10^{-10}	10	0.0001	1.0×10^{-4}	4	14	1.0×10^{-14}
0.00000000001	1.0×10^{-11}	11	0.001	1.0×10^{-3}	3	14	1.0×10^{-14}
0.000000000001	1.0×10^{-12}	12	0.01	1.0×10^{-2}	2	14	1.0×10^{-14}
0.0000000000001	1.0×10^{-13}	13	0.1	1.0×10^{-1}	1	14	1.0×10^{-14}
0.00000000000001	1.0×10^{-14}	14	1.0	1.0×10^{0}	0	14	1.0×10^{-14}

As [H+] decreases by 10x, pH increases by 1 pH unit

As [OH-] increases by 10x, pOH decreases by I pOH unit

} this is called a logarithmic scale

- the lower the pH, the higher the concentration of [H+] and the stronger the acid
- the lower the pH, the lower the concentration of [OH-]and the weaker the base
- the lower the pOH, the higher the concentration of [OH-] and the stronger the base
- the lower the pOH, the lower the concentration of [H+] and the weaker the acid
- for any solution, the pH + pOH = 14
- for any solution, the [H+] x [OH-] = 1.0×10^{-14}