

A TABLE FOR CONVERTING pH TO HYDROGEN ION CONCENTRATION $[H^+]$ OVER THE RANGE 5—9

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A TABLE FOR CONVERTING pH TO HYDROGEN ION CONCENTRATION [H⁺] OVER THE RANGE 5—9

"If the determination of blood pH is to be meaningful in clinical investigation, it must be accompanied by a differential assessment of the respiratory changes in hydrogen ion concentration and the changes due to a number of other mechanisms that can be conveniently grouped as nonrespiratory."¹

There has been increasing concern, in recent years, over the lack of standard terminology and the confusion that has consequently arisen in the expression of parameters commonly measured to evaluate acid-base status.^{1,2,3} A specific problem derives from the common usage of the pH notation to define the overall activity of the hydrogen ion in blood.⁴ Since the total hydrogen ion activity in blood is a function of respiratory and nonrespiratory components, the use of pH to define the total hydrogen ion concentration does not readily permit a quantitative evaluation of those components in terms of pH.

Recent developments in techniques for measuring blood pH^{5,6,7} now permit a differentiation of the respiratory and nonrespiratory components of blood pH in terms of hydrogen ion equivalents. This fact coupled with the recent demonstration of a simplified system for evaluating acid-base status^{1,3} may encourage a greater usage of hydrogen ion concentration units, rather than pH, to express changes in blood hydrogen ion. It is anticipated that in both medical research and clinical application the use of the pH notation will eventually diminish in favor of the

more easily integrated (with respect to acid-base status) expression of hydrogen ion concentration.

During the course of our recent studies on the alteration in blood hydrogen ion concentration during hyperventilation, it became apparent that much of the time spent in the computation of [H⁺] from pH could have been saved if a comprehensive conversion table were available. A search through the available literature disclosed the simplified conversion chart of Whitehead^{1,3}, but no tables. Although adequate for some purposes, the conversion chart was limited in range (pH 7.0–8.0) and in readability (~ 0.01 pH; ~ 2 nEq/liter [H⁺]).

To offset these limitations, conversion tables were constructed over a range covering most biological applications (pH 5.000–8.999). An additional advantage of the tables is that [H⁺] in nanoequivalents per liter (nEq/liter) may be found directly for any pH within the range to 0.001 pH. The following tables are photographic reproductions of a computer print-out and were derived from the general expression

$$\text{pH} = -\log [\text{H}^+] = \log \frac{1}{[\text{H}^+]}$$

This expression assumes an activity coefficient (a_{H^+}) for hydrogen ion of 1.

The convenience in using these tables has prompted us to reproduce them for distribution to others working with the measurement of pH in biological fluids.

REFERENCES

1. WHITEHEAD, T. P.: Blood Hydrogen Ion: Terminology, Physiology and Clinical Application, in *Advances in Clinical Chemistry*, (C. P. Stewart and H. Sobotka, eds.) Vol. 9, New York, Academic Press, 1967, pp 195-226.
2. Report by Ad-Hoc Committee of New York Academy of Sciences Conference: Acid-Base Terminology, *Lancet*, November 13, 1965, pp 1010-1012.
3. WHITEHEAD, T. P.: Acid-Base Status, pH, and P_{CO_2} , *Lancet*, November 13, 1965, pp 1015-1016.
4. HUCKABEE, W. E.: Henderson vs. Hasselbalch, *Clin. Research* 9: 116-119, 1961.
5. ASTRUP, P.: Ultra-micro-method for determining pH; P_{CO_2} and Standard Bicarbonate in Capillary Blood, in *Symposium on Blood pH and Blood Gas Measurements*, (R. F. Woolmer, ed.) London, Churchill, 1959, p. 81-100.
6. ASTRUP, P.: A New Approach to Acid-Base Metabolism, *Clin. Chem.* 7: 1-15, 1961.
7. ASTRUP, P., SIGAARD-ANDERSEN, O., JORGENSEN, K., and ENGEL, K.: The Acid-Base Metabolism. A New Approach. *Lancet*, May 14, 1960, pp 1035-1039.

pH values 5.000 - 5.149

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
5.000	10000.0	5.050	8912.5	5.100	7943.3
5.001	9977.0	5.051	8892.0	5.101	7925.0
5.002	9954.1	5.052	8871.6	5.102	7906.8
5.003	9931.2	5.053	8851.2	5.103	7888.6
5.004	9908.3	5.054	8830.8	5.104	7870.5
5.005	9885.5	5.055	8810.5	5.105	7852.4
5.006	9862.8	5.056	8790.2	5.106	7834.3
5.007	9840.1	5.057	8770.0	5.107	7816.3
5.008	9817.5	5.058	8749.9	5.108	7798.3
5.009	9794.9	5.059	8729.7	5.109	7780.4
5.010	9772.4	5.060	8709.7	5.110	7762.5
5.011	9749.9	5.061	8689.6	5.111	7744.6
5.012	9727.5	5.062	8669.6	5.112	7726.8
5.013	9705.1	5.063	8649.7	5.113	7709.1
5.014	9682.8	5.064	8629.8	5.114	7691.3
5.015	9660.5	5.065	8610.0	5.115	7673.6
5.016	9638.3	5.066	8590.2	5.116	7656.0
5.017	9616.1	5.067	8570.4	5.117	7638.4
5.018	9594.0	5.068	8550.7	5.118	7620.8
5.019	9571.9	5.069	8531.0	5.119	7603.3
5.020	9549.9	5.070	8511.4	5.120	7585.8
5.021	9528.0	5.071	8491.8	5.121	7568.4
5.022	9506.1	5.072	8472.3	5.122	7550.9
5.023	9484.2	5.073	8452.8	5.123	7533.6
5.024	9462.4	5.074	8433.4	5.124	7516.3
5.025	9440.6	5.075	8414.0	5.125	7499.0
5.026	9418.9	5.076	8394.6	5.126	7481.7
5.027	9397.2	5.077	8375.3	5.127	7464.5
5.028	9375.6	5.078	8356.0	5.128	7447.3
5.029	9354.1	5.079	8336.8	5.129	7430.2
5.030	9332.6	5.080	8317.7	5.130	7413.1
5.031	9311.1	5.081	8298.5	5.131	7396.1
5.032	9289.7	5.082	8279.4	5.132	7379.1
5.033	9268.3	5.083	8260.4	5.133	7362.1
5.034	9247.0	5.084	8241.4	5.134	7345.2
5.035	9225.7	5.085	8222.4	5.135	7328.3
5.036	9204.5	5.086	8203.5	5.136	7311.4
5.037	9183.3	5.087	8184.7	5.137	7294.6
5.038	9162.2	5.088	8165.8	5.138	7277.8
5.039	9141.1	5.089	8147.1	5.139	7261.1
5.040	9120.1	5.090	8128.3	5.140	7244.4
5.041	9099.1	5.091	8109.6	5.141	7227.7
5.042	9078.2	5.092	8091.0	5.142	7211.1
5.043	9057.3	5.093	8072.4	5.143	7194.5
5.044	9036.5	5.094	8053.8	5.144	7178.0
5.045	9015.7	5.095	8035.3	5.145	7161.5
5.046	8995.0	5.096	8016.8	5.146	7145.0
5.047	8974.3	5.097	7998.4	5.147	7128.6
5.048	8953.7	5.098	7980.0	5.148	7112.2
5.049	8933.1	5.099	7961.6	5.149	7095.8

pH values 5.150 - 5.299

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
5.150	7079.5	5.200	6309.6	5.250	5623.5
5.151	7063.2	5.201	6295.1	5.251	5610.5
5.152	7047.0	5.202	6280.6	5.252	5597.6
5.153	7030.8	5.203	6266.2	5.253	5584.7
5.154	7014.6	5.204	6251.8	5.254	5571.9
5.155	6998.5	5.205	6237.4	5.255	5559.1
5.156	6982.4	5.206	6223.0	5.256	5546.3
5.157	6966.3	5.207	6208.7	5.257	5533.5
5.158	6950.3	5.208	6194.4	5.258	5520.8
5.159	6934.3	5.209	6180.2	5.259	5508.1
5.160	6918.3	5.210	6166.0	5.260	5495.5
5.161	6902.4	5.211	6151.8	5.261	5482.8
5.162	6886.6	5.212	6137.7	5.262	5470.2
5.163	6870.7	5.213	6123.5	5.263	5457.6
5.164	6854.9	5.214	6109.5	5.264	5445.1
5.165	6839.1	5.215	6095.4	5.265	5432.5
5.166	6823.4	5.216	6081.4	5.266	5420.1
5.167	6807.7	5.217	6067.4	5.267	5407.6
5.168	6792.1	5.218	6053.4	5.268	5395.1
5.169	6776.4	5.219	6039.5	5.269	5382.7
5.170	6760.9	5.220	6025.6	5.270	5370.4
5.171	6745.3	5.221	6011.8	5.271	5358.0
5.172	6729.8	5.222	5997.9	5.272	5345.7
5.173	6714.3	5.223	5984.2	5.273	5333.4
5.174	6698.9	5.224	5970.4	5.274	5321.1
5.175	6683.5	5.225	5956.7	5.275	5308.9
5.176	6668.1	5.226	5943.0	5.276	5296.7
5.177	6652.8	5.227	5929.3	5.277	5284.5
5.178	6637.5	5.228	5915.7	5.278	5272.3
5.179	6622.2	5.229	5902.1	5.279	5260.2
5.180	6607.0	5.230	5888.5	5.280	5248.1
5.181	6591.8	5.231	5874.9	5.281	5236.0
5.182	6576.6	5.232	5861.4	5.282	5224.0
5.183	6561.5	5.233	5847.9	5.283	5212.0
5.184	6546.4	5.234	5834.5	5.284	5200.0
5.185	6531.3	5.235	5821.1	5.285	5188.0
5.186	6516.3	5.236	5807.7	5.286	5176.1
5.187	6501.3	5.237	5794.3	5.287	5164.2
5.188	6486.4	5.238	5781.0	5.288	5152.3
5.189	6471.5	5.239	5767.7	5.289	5140.5
5.190	6456.6	5.240	5754.4	5.290	5128.7
5.191	6441.7	5.241	5741.2	5.291	5116.9
5.192	6426.9	5.242	5728.0	5.292	5105.1
5.193	6412.1	5.243	5714.8	5.293	5093.4
5.194	6397.4	5.244	5701.7	5.294	5081.6
5.195	6382.7	5.245	5688.6	5.295	5070.0
5.196	6368.0	5.246	5675.5	5.296	5058.3
5.197	6353.3	5.247	5662.4	5.297	5046.7
5.198	6338.7	5.248	5649.4	5.298	5035.1
5.199	6324.2	5.249	5636.4	5.299	5023.5

pH values 5.300 - 5.449

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
5.300	5011.9	5.350	4466.9	5.400	3981.1
5.301	5000.4	5.351	4456.6	5.401	3972.0
5.302	4988.9	5.352	4446.4	5.402	3962.8
5.303	4977.4	5.353	4436.1	5.403	3953.7
5.304	4966.0	5.354	4425.9	5.404	3944.6
5.305	4954.5	5.355	4415.8	5.405	3935.5
5.306	4943.2	5.356	4405.6	5.406	3926.5
5.307	4931.8	5.357	4395.5	5.407	3917.5
5.308	4920.4	5.358	4385.4	5.408	3908.5
5.309	4909.1	5.359	4375.3	5.409	3899.5
5.310	4897.8	5.360	4365.2	5.410	3890.5
5.311	4886.6	5.361	4355.2	5.411	3881.6
5.312	4875.3	5.362	4345.1	5.412	3872.6
5.313	4864.1	5.363	4335.2	5.413	3863.7
5.314	4852.9	5.364	4325.2	5.414	3854.8
5.315	4841.8	5.365	4315.2	5.415	3846.0
5.316	4830.6	5.366	4305.3	5.416	3837.1
5.317	4819.5	5.367	4295.4	5.417	3828.3
5.318	4808.4	5.368	4285.5	5.418	3819.5
5.319	4797.4	5.369	4275.7	5.419	3810.7
5.320	4786.3	5.370	4265.8	5.420	3801.9
5.321	4775.3	5.371	4256.0	5.421	3793.2
5.322	4764.4	5.372	4246.2	5.422	3784.5
5.323	4753.4	5.373	4236.5	5.423	3775.8
5.324	4742.5	5.374	4226.7	5.424	3767.1
5.325	4731.6	5.375	4217.0	5.425	3758.4
5.326	4720.7	5.376	4207.3	5.426	3749.8
5.327	4709.8	5.377	4197.6	5.427	3741.2
5.328	4699.0	5.378	4188.0	5.428	3732.5
5.329	4688.2	5.379	4178.4	5.429	3724.0
5.330	4677.4	5.380	4168.7	5.430	3715.4
5.331	4666.6	5.381	4159.2	5.431	3706.9
5.332	4655.9	5.382	4149.6	5.432	3698.3
5.333	4645.2	5.383	4140.0	5.433	3689.8
5.334	4634.5	5.384	4130.5	5.434	3681.3
5.335	4623.9	5.385	4121.0	5.435	3672.9
5.336	4613.2	5.386	4111.5	5.436	3664.4
5.337	4602.6	5.387	4102.1	5.437	3656.0
5.338	4592.0	5.388	4092.7	5.438	3647.6
5.339	4581.5	5.389	4083.2	5.439	3639.2
5.340	4570.9	5.390	4073.8	5.440	3630.8
5.341	4560.4	5.391	4064.5	5.441	3622.5
5.342	4549.9	5.392	4055.1	5.442	3614.1
5.343	4539.5	5.393	4045.8	5.443	3605.8
5.344	4529.0	5.394	4036.5	5.444	3597.5
5.345	4518.6	5.395	4027.2	5.445	3589.3
5.346	4508.2	5.396	4018.0	5.446	3581.0
5.347	4497.8	5.397	4008.7	5.447	3572.8
5.348	4487.5	5.398	3999.5	5.448	3564.6
5.349	4477.2	5.399	3990.3	5.449	3556.4

pH values 5.450 – 5.599

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
5.450	3548.2	5.500	3162.3	5.550	2818.4
5.451	3540.0	5.501	3155.1	5.551	2811.9
5.452	3531.9	5.502	3147.8	5.552	2805.5
5.453	3523.8	5.503	3140.6	5.553	2799.0
5.454	3515.7	5.504	3133.3	5.554	2792.6
5.455	3507.6	5.505	3126.1	5.555	2786.2
5.456	3499.5	5.506	3118.9	5.556	2779.8
5.457	3491.5	5.507	3111.8	5.557	2773.4
5.458	3483.4	5.508	3104.6	5.558	2767.0
5.459	3475.4	5.509	3097.5	5.559	2760.6
5.460	3467.4	5.510	3090.3	5.560	2754.3
5.461	3459.4	5.511	3083.2	5.561	2747.9
5.462	3451.5	5.512	3076.1	5.562	2741.6
5.463	3443.5	5.513	3069.1	5.563	2735.3
5.464	3435.6	5.514	3062.0	5.564	2729.0
5.465	3427.7	5.515	3055.0	5.565	2722.7
5.466	3419.8	5.516	3047.9	5.566	2716.5
5.467	3412.0	5.517	3040.9	5.567	2710.2
5.468	3404.1	5.518	3033.9	5.568	2704.0
5.469	3396.3	5.519	3027.0	5.569	2697.8
5.470	3388.5	5.520	3020.0	5.570	2691.6
5.471	3380.7	5.521	3013.1	5.571	2685.4
5.472	3372.9	5.522	3006.1	5.572	2679.2
5.473	3365.2	5.523	2999.2	5.573	2673.1
5.474	3357.4	5.524	2992.3	5.574	2666.9
5.475	3349.7	5.525	2985.4	5.575	2660.8
5.476	3342.0	5.526	2978.6	5.576	2654.7
5.477	3334.3	5.527	2971.7	5.577	2648.5
5.478	3326.6	5.528	2964.9	5.578	2642.5
5.479	3319.0	5.529	2958.1	5.579	2636.4
5.480	3311.4	5.530	2951.3	5.580	2630.3
5.481	3303.7	5.531	2944.5	5.581	2624.3
5.482	3296.1	5.532	2937.7	5.582	2618.2
5.483	3288.6	5.533	2930.9	5.583	2612.2
5.484	3281.0	5.534	2924.2	5.584	2606.2
5.485	3273.5	5.535	2917.5	5.585	2600.2
5.486	3265.9	5.536	2910.8	5.586	2594.2
5.487	3258.4	5.537	2904.1	5.587	2588.3
5.488	3250.9	5.538	2897.4	5.588	2582.3
5.489	3243.4	5.539	2890.7	5.589	2576.4
5.490	3236.0	5.540	2884.1	5.590	2570.4
5.491	3228.5	5.541	2877.4	5.591	2564.5
5.492	3221.1	5.542	2870.8	5.592	2558.6
5.493	3213.7	5.543	2864.2	5.593	2552.7
5.494	3206.3	5.544	2857.6	5.594	2546.9
5.495	3198.9	5.545	2851.1	5.595	2541.0
5.496	3191.6	5.546	2844.5	5.596	2535.2
5.497	3184.2	5.547	2838.0	5.597	2529.3
5.498	3176.9	5.548	2831.4	5.598	2523.5
5.499	3169.6	5.549	2824.9	5.599	2517.7

pH values 5.600 - 5.749

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
5.600	2511.9	5.650	2238.8	5.700	1995.3
5.601	2506.2	5.651	2233.6	5.701	1990.7
5.602	2500.4	5.652	2228.5	5.702	1986.1
5.603	2494.6	5.653	2223.4	5.703	1981.6
5.604	2488.9	5.654	2218.2	5.704	1977.0
5.605	2483.2	5.655	2213.1	5.705	1972.5
5.606	2477.5	5.656	2208.0	5.706	1967.9
5.607	2471.8	5.657	2203.0	5.707	1963.4
5.608	2466.1	5.658	2197.9	5.708	1958.9
5.609	2460.4	5.659	2192.8	5.709	1954.4
5.610	2454.8	5.660	2187.8	5.710	1949.9
5.611	2449.1	5.661	2182.8	5.711	1945.4
5.612	2443.5	5.662	2177.8	5.712	1940.9
5.613	2437.9	5.663	2172.7	5.713	1936.5
5.614	2432.2	5.664	2167.7	5.714	1932.0
5.615	2426.7	5.665	2162.8	5.715	1927.6
5.616	2421.1	5.666	2157.8	5.716	1923.1
5.617	2415.5	5.667	2152.8	5.717	1918.7
5.618	2409.9	5.668	2147.9	5.718	1914.3
5.619	2404.4	5.669	2142.9	5.719	1909.9
5.620	2398.9	5.670	2138.0	5.720	1905.5
5.621	2393.4	5.671	2133.1	5.721	1901.1
5.622	2387.9	5.672	2128.2	5.722	1896.7
5.623	2382.4	5.673	2123.3	5.723	1892.4
5.624	2376.9	5.674	2118.4	5.724	1888.0
5.625	2371.4	5.675	2113.5	5.725	1883.7
5.626	2366.0	5.676	2108.7	5.726	1879.4
5.627	2360.5	5.677	2103.8	5.727	1875.0
5.628	2355.1	5.678	2099.0	5.728	1870.7
5.629	2349.7	5.679	2094.2	5.729	1866.4
5.630	2344.3	5.680	2089.3	5.730	1862.1
5.631	2338.9	5.681	2084.5	5.731	1857.8
5.632	2333.5	5.682	2079.7	5.732	1853.6
5.633	2328.1	5.683	2075.0	5.733	1849.3
5.634	2322.8	5.684	2070.2	5.734	1845.1
5.635	2317.4	5.685	2065.4	5.735	1840.8
5.636	2312.1	5.686	2060.7	5.736	1836.6
5.637	2306.8	5.687	2055.9	5.737	1832.4
5.638	2301.5	5.688	2051.2	5.738	1828.1
5.639	2296.2	5.689	2046.5	5.739	1823.9
5.640	2290.9	5.690	2041.8	5.740	1819.7
5.641	2285.6	5.691	2037.1	5.741	1815.6
5.642	2280.4	5.692	2032.4	5.742	1811.4
5.643	2275.1	5.693	2027.7	5.743	1807.2
5.644	2269.9	5.694	2023.1	5.744	1803.1
5.645	2264.7	5.695	2018.4	5.745	1798.9
5.646	2259.5	5.696	2013.8	5.746	1794.8
5.647	2254.3	5.697	2009.1	5.747	1790.6
5.648	2249.1	5.698	2004.5	5.748	1786.5
5.649	2243.9	5.699	1999.9	5.749	1782.4

pH values 5.750 – 5.899

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
5.750	1778.3	5.800	1584.9	5.850	1412.6
5.751	1774.2	5.801	1581.3	5.851	1409.3
5.752	1770.1	5.802	1577.6	5.852	1406.1
5.753	1766.1	5.803	1574.0	5.853	1402.8
5.754	1762.0	5.804	1570.4	5.854	1399.6
5.755	1758.0	5.805	1566.8	5.855	1396.4
5.756	1753.9	5.806	1563.2	5.856	1393.2
5.757	1749.9	5.807	1559.6	5.857	1390.0
5.758	1745.9	5.808	1556.0	5.858	1386.8
5.759	1741.8	5.809	1552.4	5.859	1383.6
5.760	1737.8	5.810	1548.9	5.860	1380.4
5.761	1733.8	5.811	1545.3	5.861	1377.2
5.762	1729.9	5.812	1541.7	5.862	1374.1
5.763	1725.9	5.813	1538.2	5.863	1370.9
5.764	1721.9	5.814	1534.7	5.864	1367.8
5.765	1717.9	5.815	1531.1	5.865	1364.6
5.766	1714.0	5.816	1527.6	5.866	1361.5
5.767	1710.1	5.817	1524.1	5.867	1358.3
5.768	1706.1	5.818	1520.6	5.868	1355.2
5.769	1702.2	5.819	1517.1	5.869	1352.1
5.770	1698.3	5.820	1513.6	5.870	1349.0
5.771	1694.4	5.821	1510.1	5.871	1345.9
5.772	1690.5	5.822	1506.6	5.872	1342.8
5.773	1686.6	5.823	1503.2	5.873	1339.7
5.774	1682.7	5.824	1499.7	5.874	1336.6
5.775	1678.8	5.825	1496.3	5.875	1333.6
5.776	1675.0	5.826	1492.8	5.876	1330.5
5.777	1671.1	5.827	1489.4	5.877	1327.4
5.778	1667.3	5.828	1486.0	5.878	1324.4
5.779	1663.5	5.829	1482.6	5.879	1321.3
5.780	1659.6	5.830	1479.1	5.880	1318.3
5.781	1655.8	5.831	1475.7	5.881	1315.3
5.782	1652.0	5.832	1472.3	5.882	1312.2
5.783	1648.2	5.833	1469.0	5.883	1309.2
5.784	1644.4	5.834	1465.6	5.884	1306.2
5.785	1640.6	5.835	1462.2	5.885	1303.2
5.786	1636.9	5.836	1458.9	5.886	1300.2
5.787	1633.1	5.837	1455.5	5.887	1297.2
5.788	1629.3	5.838	1452.1	5.888	1294.2
5.789	1625.6	5.839	1448.8	5.889	1291.3
5.790	1621.8	5.840	1445.5	5.890	1288.3
5.791	1618.1	5.841	1442.2	5.891	1285.3
5.792	1614.4	5.842	1438.8	5.892	1282.4
5.793	1610.7	5.843	1435.5	5.893	1279.4
5.794	1607.0	5.844	1432.2	5.894	1276.5
5.795	1603.3	5.845	1428.9	5.895	1273.5
5.796	1599.6	5.846	1425.6	5.896	1270.6
5.797	1595.9	5.847	1422.4	5.897	1267.7
5.798	1592.2	5.848	1419.1	5.898	1264.8
5.799	1588.6	5.849	1415.8	5.899	1261.9

pH values 5.900 - 5.999

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
5.900	1259.0	5.950	1122.1
5.901	1256.1	5.951	1119.5
5.902	1253.2	5.952	1116.9
5.903	1250.3	5.953	1114.3
5.904	1247.4	5.954	1111.8
5.905	1244.5	5.955	1109.2
5.906	1241.7	5.956	1106.7
5.907	1238.8	5.957	1104.1
5.908	1236.0	5.958	1101.6
5.909	1233.1	5.959	1099.0
5.910	1230.3	5.960	1096.5
5.911	1227.5	5.961	1094.0
5.912	1224.6	5.962	1091.5
5.913	1221.8	5.963	1089.0
5.914	1219.0	5.964	1086.5
5.915	1216.2	5.965	1084.0
5.916	1213.4	5.966	1081.5
5.917	1210.6	5.967	1079.0
5.918	1207.8	5.968	1076.5
5.919	1205.1	5.969	1074.0
5.920	1202.3	5.970	1071.6
5.921	1199.5	5.971	1069.1
5.922	1196.8	5.972	1066.6
5.923	1194.0	5.973	1064.2
5.924	1191.3	5.974	1061.7
5.925	1188.5	5.975	1059.3
5.926	1185.8	5.976	1056.8
5.927	1183.1	5.977	1054.4
5.928	1180.4	5.978	1052.0
5.929	1177.6	5.979	1049.6
5.930	1174.9	5.980	1047.2
5.931	1172.2	5.981	1044.8
5.932	1169.5	5.982	1042.3
5.933	1166.8	5.983	1040.0
5.934	1164.2	5.984	1037.6
5.935	1161.5	5.985	1035.2
5.936	1158.8	5.986	1032.8
5.937	1156.1	5.987	1030.4
5.938	1153.5	5.988	1028.0
5.939	1150.8	5.989	1025.7
5.940	1148.2	5.990	1023.3
5.941	1145.5	5.991	1021.0
5.942	1142.9	5.992	1018.6
5.943	1140.3	5.993	1016.3
5.944	1137.7	5.994	1013.9
5.945	1135.0	5.995	1011.6
5.946	1132.4	5.996	1009.3
5.947	1129.8	5.997	1007.0
5.948	1127.2	5.998	1004.6
5.949	1124.6	5.999	1002.3

pH values 6.000 – 6.149

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
6.000	1000.00	6.050	891.25	6.100	794.33
6.001	997.70	6.051	889.20	6.101	792.50
6.002	995.41	6.052	887.16	6.102	790.68
6.003	993.12	6.053	885.12	6.103	788.86
6.004	990.83	6.054	883.08	6.104	787.05
6.005	988.55	6.055	881.05	6.105	785.24
6.006	986.28	6.056	879.02	6.106	783.43
6.007	984.01	6.057	877.00	6.107	781.63
6.008	981.75	6.058	874.99	6.108	779.83
6.009	979.49	6.059	872.97	6.109	778.04
6.010	977.24	6.060	870.97	6.110	776.25
6.011	974.99	6.061	868.96	6.111	774.46
6.012	972.75	6.062	866.96	6.112	772.68
6.013	970.51	6.063	864.97	6.113	770.91
6.014	968.28	6.064	862.98	6.114	769.13
6.015	966.05	6.065	861.00	6.115	767.36
6.016	963.83	6.066	859.02	6.116	765.60
6.017	961.61	6.067	857.04	6.117	763.84
6.018	959.40	6.068	855.07	6.118	762.08
6.019	957.19	6.069	853.10	6.119	760.33
6.020	954.99	6.070	851.14	6.120	758.58
6.021	952.80	6.071	849.18	6.121	756.84
6.022	950.61	6.072	847.23	6.122	755.09
6.023	948.42	6.073	845.28	6.123	753.36
6.024	946.24	6.074	843.34	6.124	751.63
6.025	944.06	6.075	841.40	6.125	749.90
6.026	941.89	6.076	839.46	6.126	748.17
6.027	939.72	6.077	837.53	6.127	746.45
6.028	937.56	6.078	835.60	6.128	744.73
6.029	935.41	6.079	833.68	6.129	743.02
6.030	933.26	6.080	831.77	6.130	741.31
6.031	931.11	6.081	829.85	6.131	739.61
6.032	928.97	6.082	827.94	6.132	737.91
6.033	926.83	6.083	826.04	6.133	736.21
6.034	924.70	6.084	824.14	6.134	734.52
6.035	922.57	6.085	822.24	6.135	732.83
6.036	920.45	6.086	820.35	6.136	731.14
6.037	918.33	6.087	818.47	6.137	729.46
6.038	916.22	6.088	816.58	6.138	727.78
6.039	914.11	6.089	814.71	6.139	726.11
6.040	912.01	6.090	812.83	6.140	724.44
6.041	909.91	6.091	810.96	6.141	722.77
6.042	907.82	6.092	809.10	6.142	721.11
6.043	905.73	6.093	807.24	6.143	719.45
6.044	903.65	6.094	805.38	6.144	717.80
6.045	901.57	6.095	803.53	6.145	716.15
6.046	899.50	6.096	801.68	6.146	714.50
6.047	897.43	6.097	799.84	6.147	712.86
6.048	895.37	6.098	798.00	6.148	711.22
6.049	893.31	6.099	796.16	6.149	709.58

pH values 6.150 - 6.299

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
6.150	707.95	6.200	630.96	6.250	562.35
6.151	706.32	6.201	629.51	6.251	561.05
6.152	704.70	6.202	628.06	6.252	559.76
6.153	703.08	6.203	626.62	6.253	558.47
6.154	701.46	6.204	625.18	6.254	557.19
6.155	699.85	6.205	623.74	6.255	555.91
6.156	698.24	6.206	622.30	6.256	554.63
6.157	696.63	6.207	620.87	6.257	553.35
6.158	695.03	6.208	619.44	6.258	552.08
6.159	693.43	6.209	618.02	6.259	550.81
6.160	691.83	6.210	616.60	6.260	549.55
6.161	690.24	6.211	615.18	6.261	548.28
6.162	688.66	6.212	613.77	6.262	547.02
6.163	687.07	6.213	612.35	6.263	545.76
6.164	685.49	6.214	610.95	6.264	544.51
6.165	683.91	6.215	609.54	6.265	543.25
6.166	682.34	6.216	608.14	6.266	542.01
6.167	680.77	6.217	606.74	6.267	540.76
6.168	679.21	6.218	605.34	6.268	539.51
6.169	677.64	6.219	603.95	6.269	538.27
6.170	676.09	6.220	602.56	6.270	537.04
6.171	674.53	6.221	601.18	6.271	535.80
6.172	672.98	6.222	599.80	6.272	534.57
6.173	671.43	6.223	598.42	6.273	533.34
6.174	669.89	6.224	597.04	6.274	532.11
6.175	668.35	6.225	595.67	6.275	530.89
6.176	666.81	6.226	594.30	6.276	529.67
6.177	665.28	6.227	592.93	6.277	528.45
6.178	663.75	6.228	591.57	6.278	527.23
6.179	662.22	6.229	590.21	6.279	526.02
6.180	660.70	6.230	588.85	6.280	524.81
6.181	659.18	6.231	587.49	6.281	523.60
6.182	657.66	6.232	586.14	6.282	522.40
6.183	656.15	6.233	584.79	6.283	521.20
6.184	654.64	6.234	583.45	6.284	520.00
6.185	653.13	6.235	582.11	6.285	518.80
6.186	651.63	6.236	580.77	6.286	517.61
6.187	650.13	6.237	579.43	6.287	516.42
6.188	648.64	6.238	578.10	6.288	515.23
6.189	647.15	6.239	576.77	6.289	514.05
6.190	645.66	6.240	575.44	6.290	512.87
6.191	644.17	6.241	574.12	6.291	511.69
6.192	642.69	6.242	572.80	6.292	510.51
6.193	641.21	6.243	571.48	6.293	509.34
6.194	639.74	6.244	570.17	6.294	508.16
6.195	638.27	6.245	568.86	6.295	507.00
6.196	636.80	6.246	567.55	6.296	505.83
6.197	635.33	6.247	566.24	6.297	504.67
6.198	633.87	6.248	564.94	6.298	503.51
6.199	632.42	6.249	563.64	6.299	502.35

pH values 6.300 – 6.449

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
6.300	501.19	6.350	446.69	6.400	398.11
6.301	500.04	6.351	445.66	6.401	397.20
6.302	498.89	6.352	444.64	6.402	396.28
6.303	497.74	6.353	443.61	6.403	395.37
6.304	496.60	6.354	442.59	6.404	394.46
6.305	495.45	6.355	441.58	6.405	393.55
6.306	494.32	6.356	440.56	6.406	392.65
6.307	493.18	6.357	439.55	6.407	391.75
6.308	492.04	6.358	438.54	6.408	390.85
6.309	490.91	6.359	437.53	6.409	389.95
6.310	489.78	6.360	436.52	6.410	389.05
6.311	488.66	6.361	435.52	6.411	388.16
6.312	487.53	6.362	434.51	6.412	387.26
6.313	486.41	6.363	433.52	6.413	386.37
6.314	485.29	6.364	432.52	6.414	385.48
6.315	484.18	6.365	431.52	6.415	384.60
6.316	483.06	6.366	430.53	6.416	383.71
6.317	481.95	6.367	429.54	6.417	382.83
6.318	480.84	6.368	428.55	6.418	381.95
6.319	479.74	6.369	427.57	6.419	381.07
6.320	478.63	6.370	426.58	6.420	380.19
6.321	477.53	6.371	425.60	6.421	379.32
6.322	476.44	6.372	424.62	6.422	378.45
6.323	475.34	6.373	423.65	6.423	377.58
6.324	474.25	6.374	422.67	6.424	376.71
6.325	473.16	6.375	421.70	6.425	375.84
6.326	472.07	6.376	420.73	6.426	374.98
6.327	470.98	6.377	419.76	6.427	374.12
6.328	469.90	6.378	418.80	6.428	373.25
6.329	468.82	6.379	417.84	6.429	372.40
6.330	467.74	6.380	416.87	6.430	371.54
6.331	466.66	6.381	415.92	6.431	370.69
6.332	465.59	6.382	414.96	6.432	369.83
6.333	464.52	6.383	414.00	6.433	368.98
6.334	463.45	6.384	413.05	6.434	368.13
6.335	462.39	6.385	412.10	6.435	367.29
6.336	461.32	6.386	411.15	6.436	366.44
6.337	460.26	6.387	410.21	6.437	365.60
6.338	459.20	6.388	409.27	6.438	364.76
6.339	458.15	6.389	408.32	6.439	363.92
6.340	457.09	6.390	407.38	6.440	363.08
6.341	456.04	6.391	406.45	6.441	362.25
6.342	454.99	6.392	405.51	6.442	361.41
6.343	453.95	6.393	404.58	6.443	360.58
6.344	452.90	6.394	403.65	6.444	359.75
6.345	451.86	6.395	402.72	6.445	358.93
6.346	450.82	6.396	401.80	6.446	358.10
6.347	449.78	6.397	400.87	6.447	357.28
6.348	448.75	6.398	399.95	6.448	356.46
6.349	447.72	6.399	399.03	6.449	355.64

pH values 6.450 – 6.599

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
6.450	354.82	6.500	316.23	6.550	281.84
6.451	354.00	6.501	315.51	6.551	281.19
6.452	353.19	6.502	314.78	6.552	280.55
6.453	352.38	6.503	314.06	6.553	279.90
6.454	351.57	6.504	313.33	6.554	279.26
6.455	350.76	6.505	312.61	6.555	278.62
6.456	349.95	6.506	311.89	6.556	277.98
6.457	349.15	6.507	311.18	6.557	277.34
6.458	348.34	6.508	310.46	6.558	276.70
6.459	347.54	6.509	309.75	6.559	276.06
6.460	346.74	6.510	309.03	6.560	275.43
6.461	345.94	6.511	308.32	6.561	274.79
6.462	345.15	6.512	307.61	6.562	274.16
6.463	344.35	6.513	306.91	6.563	273.53
6.464	343.56	6.514	306.20	6.564	272.90
6.465	342.77	6.515	305.50	6.565	272.27
6.466	341.98	6.516	304.79	6.566	271.65
6.467	341.20	6.517	304.09	6.567	271.02
6.468	340.41	6.518	303.39	6.568	270.40
6.469	339.63	6.519	302.70	6.569	269.78
6.470	338.85	6.520	302.00	6.570	269.16
6.471	338.07	6.521	301.31	6.571	268.54
6.472	337.29	6.522	300.61	6.572	267.92
6.473	336.52	6.523	299.92	6.573	267.31
6.474	335.74	6.524	299.23	6.574	266.69
6.475	334.97	6.525	298.54	6.575	266.08
6.476	334.20	6.526	297.86	6.576	265.47
6.477	333.43	6.527	297.17	6.577	264.85
6.478	332.66	6.528	296.49	6.578	264.25
6.479	331.90	6.529	295.81	6.579	263.64
6.480	331.14	6.530	295.13	6.580	263.03
6.481	330.37	6.531	294.45	6.581	262.43
6.482	329.61	6.532	293.77	6.582	261.82
6.483	328.86	6.533	293.09	6.583	261.22
6.484	328.10	6.534	292.42	6.584	260.62
6.485	327.35	6.535	291.75	6.585	260.02
6.486	326.59	6.536	291.08	6.586	259.42
6.487	325.84	6.537	290.41	6.587	258.83
6.488	325.09	6.538	289.74	6.588	258.23
6.489	324.34	6.539	289.07	6.589	257.64
6.490	323.60	6.540	288.41	6.590	257.04
6.491	322.85	6.541	287.74	6.591	256.45
6.492	322.11	6.542	287.08	6.592	255.86
6.493	321.37	6.543	286.42	6.593	255.27
6.494	320.63	6.544	285.76	6.594	254.69
6.495	319.89	6.545	285.11	6.595	254.10
6.496	319.16	6.546	284.45	6.596	253.52
6.497	318.42	6.547	283.80	6.597	252.93
6.498	317.69	6.548	283.14	6.598	252.35
6.499	316.96	6.549	282.49	6.599	251.77

pH values 6.600– 6.749

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
6.600	251.19	6.650	223.88	6.700	199.53
6.601	250.62	6.651	223.36	6.701	199.07
6.602	250.04	6.652	222.85	6.702	198.61
6.603	249.46	6.653	222.34	6.703	198.16
6.604	248.89	6.654	221.82	6.704	197.70
6.605	248.32	6.655	221.31	6.705	197.25
6.606	247.75	6.656	220.80	6.706	196.79
6.607	247.18	6.657	220.30	6.707	196.34
6.608	246.61	6.658	219.79	6.708	195.89
6.609	246.04	6.659	219.28	6.709	195.44
6.610	245.48	6.660	218.78	6.710	194.99
6.611	244.91	6.661	218.28	6.711	194.54
6.612	244.35	6.662	217.78	6.712	194.09
6.613	243.79	6.663	217.27	6.713	193.65
6.614	243.22	6.664	216.77	6.714	193.20
6.615	242.67	6.665	216.28	6.715	192.76
6.616	242.11	6.666	215.78	6.716	192.31
6.617	241.55	6.667	215.28	6.717	191.87
6.618	240.99	6.668	214.79	6.718	191.43
6.619	240.44	6.669	214.29	6.719	190.99
6.620	239.89	6.670	213.80	6.720	190.55
6.621	239.34	6.671	213.31	6.721	190.11
6.622	238.79	6.672	212.82	6.722	189.67
6.623	238.24	6.673	212.33	6.723	189.24
6.624	237.69	6.674	211.84	6.724	188.80
6.625	237.14	6.675	211.35	6.725	188.37
6.626	236.60	6.676	210.87	6.726	187.94
6.627	236.05	6.677	210.38	6.727	187.50
6.628	235.51	6.678	209.90	6.728	187.07
6.629	234.97	6.679	209.42	6.729	186.64
6.630	234.43	6.680	208.93	6.730	186.21
6.631	233.89	6.681	208.45	6.731	185.78
6.632	233.35	6.682	207.97	6.732	185.36
6.633	232.81	6.683	207.50	6.733	184.93
6.634	232.28	6.684	207.02	6.734	184.51
6.635	231.74	6.685	206.54	6.735	184.08
6.636	231.21	6.686	206.07	6.736	183.66
6.637	230.68	6.687	205.59	6.737	183.24
6.638	230.15	6.688	205.12	6.738	182.81
6.639	229.62	6.689	204.65	6.739	182.39
6.640	229.09	6.690	204.18	6.740	181.97
6.641	228.56	6.691	203.71	6.741	181.56
6.642	228.04	6.692	203.24	6.742	181.14
6.643	227.51	6.693	202.77	6.743	180.72
6.644	226.99	6.694	202.31	6.744	180.31
6.645	226.47	6.695	201.84	6.745	179.89
6.646	225.95	6.696	201.38	6.746	179.48
6.647	225.43	6.697	200.91	6.747	179.06
6.648	224.91	6.698	200.45	6.748	178.65
6.649	224.39	6.699	199.99	6.749	178.24

pH values 6.750 – 6.899

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
6.750	177.83	6.800	158.49	6.850	141.26
6.751	177.42	6.801	158.13	6.851	140.93
6.752	177.01	6.802	157.76	6.852	140.61
6.753	176.61	6.803	157.40	6.853	140.28
6.754	176.20	6.804	157.04	6.854	139.96
6.755	175.80	6.805	156.68	6.855	139.64
6.756	175.39	6.806	156.32	6.856	139.32
6.757	174.99	6.807	155.96	6.857	139.00
6.758	174.59	6.808	155.60	6.858	138.68
6.759	174.18	6.809	155.24	6.859	138.36
6.760	173.78	6.810	154.89	6.860	138.04
6.761	173.38	6.811	154.53	6.861	137.72
6.762	172.99	6.812	154.17	6.862	137.41
6.763	172.59	6.813	153.82	6.863	137.09
6.764	172.19	6.814	153.47	6.864	136.78
6.765	171.79	6.815	153.11	6.865	136.46
6.766	171.40	6.816	152.76	6.866	136.15
6.767	171.01	6.817	152.41	6.867	135.83
6.768	170.61	6.818	152.06	6.868	135.52
6.769	170.22	6.819	151.71	6.869	135.21
6.770	169.83	6.820	151.36	6.870	134.90
6.771	169.44	6.821	151.01	6.871	134.59
6.772	169.05	6.822	150.66	6.872	134.28
6.773	168.66	6.823	150.32	6.873	133.97
6.774	168.27	6.824	149.97	6.874	133.66
6.775	167.88	6.825	149.63	6.875	133.36
6.776	167.50	6.826	149.28	6.876	133.05
6.777	167.11	6.827	148.94	6.877	132.74
6.778	166.73	6.828	148.60	6.878	132.44
6.779	166.35	6.829	148.26	6.879	132.13
6.780	165.96	6.830	147.91	6.880	131.83
6.781	165.58	6.831	147.57	6.881	131.53
6.782	165.20	6.832	147.23	6.882	131.22
6.783	164.82	6.833	146.90	6.883	130.92
6.784	164.44	6.834	146.56	6.884	130.62
6.785	164.06	6.835	146.22	6.885	130.32
6.786	163.69	6.836	145.89	6.886	130.02
6.787	163.31	6.837	145.55	6.887	129.72
6.788	162.93	6.838	145.21	6.888	129.42
6.789	162.56	6.839	144.88	6.889	129.13
6.790	162.18	6.840	144.55	6.890	128.83
6.791	161.81	6.841	144.22	6.891	128.53
6.792	161.44	6.842	143.88	6.892	128.24
6.793	161.07	6.843	143.55	6.893	127.94
6.794	160.70	6.844	143.22	6.894	127.65
6.795	160.33	6.845	142.89	6.895	127.35
6.796	159.96	6.846	142.56	6.896	127.06
6.797	159.59	6.847	142.24	6.897	126.77
6.798	159.22	6.848	141.91	6.898	126.48
6.799	158.86	6.849	141.58	6.899	126.19

pH values 6.900 – 6.999

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
6.900	125.90	6.950	112.20
6.901	125.61	6.951	111.95
6.902	125.32	6.952	111.69
6.903	125.03	6.953	111.43
6.904	124.74	6.954	111.18
6.905	124.45	6.955	110.92
6.906	124.17	6.956	110.67
6.907	123.88	6.957	110.41
6.908	123.60	6.958	110.16
6.909	123.31	6.959	109.90
6.910	123.03	6.960	109.65
6.911	122.75	6.961	109.40
6.912	122.46	6.962	109.15
6.913	122.18	6.963	108.90
6.914	121.90	6.964	108.65
6.915	121.62	6.965	108.40
6.916	121.34	6.966	108.15
6.917	121.06	6.967	107.90
6.918	120.78	6.968	107.65
6.919	120.51	6.969	107.40
6.920	120.23	6.970	107.16
6.921	119.95	6.971	106.91
6.922	119.68	6.972	106.66
6.923	119.40	6.973	106.42
6.924	119.13	6.974	106.17
6.925	118.85	6.975	105.93
6.926	118.58	6.976	105.68
6.927	118.31	6.977	105.44
6.928	118.04	6.978	105.20
6.929	117.76	6.979	104.96
6.930	117.49	6.980	104.72
6.931	117.22	6.981	104.48
6.932	116.95	6.982	104.23
6.933	116.68	6.983	104.00
6.934	116.42	6.984	103.76
6.935	116.15	6.985	103.52
6.936	115.88	6.986	103.28
6.937	115.61	6.987	103.04
6.938	115.35	6.988	102.80
6.939	115.08	6.989	102.57
6.940	114.82	6.990	102.33
6.941	114.55	6.991	102.10
6.942	114.29	6.992	101.86
6.943	114.03	6.993	101.63
6.944	113.77	6.994	101.39
6.945	113.50	6.995	101.16
6.946	113.24	6.996	100.93
6.947	112.98	6.997	100.70
6.948	112.72	6.998	100.46
6.949	112.46	6.999	100.23

pH values 7.000 - 7.149

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
7.000	100.000	7.050	89.125	7.100	79.433
7.001	99.770	7.051	88.920	7.101	79.250
7.002	99.541	7.052	88.716	7.102	79.068
7.003	99.312	7.053	88.512	7.103	78.886
7.004	99.083	7.054	88.308	7.104	78.705
7.005	98.855	7.055	88.105	7.105	78.524
7.006	98.628	7.056	87.902	7.106	78.343
7.007	98.401	7.057	87.700	7.107	78.163
7.008	98.175	7.058	87.499	7.108	77.983
7.009	97.949	7.059	87.297	7.109	77.804
7.010	97.724	7.060	87.097	7.110	77.625
7.011	97.499	7.061	86.896	7.111	77.446
7.012	97.275	7.062	86.696	7.112	77.268
7.013	97.051	7.063	86.497	7.113	77.091
7.014	96.828	7.064	86.298	7.114	76.913
7.015	96.605	7.065	86.100	7.115	76.736
7.016	96.383	7.066	85.902	7.116	76.560
7.017	96.161	7.067	85.704	7.117	76.384
7.018	95.940	7.068	85.507	7.118	76.208
7.019	95.719	7.069	85.310	7.119	76.033
7.020	95.499	7.070	85.114	7.120	75.858
7.021	95.280	7.071	84.918	7.121	75.684
7.022	95.061	7.072	84.723	7.122	75.509
7.023	94.842	7.073	84.528	7.123	75.336
7.024	94.624	7.074	84.334	7.124	75.163
7.025	94.406	7.075	84.140	7.125	74.990
7.026	94.189	7.076	83.946	7.126	74.817
7.027	93.972	7.077	83.753	7.127	74.645
7.028	93.756	7.078	83.560	7.128	74.473
7.029	93.541	7.079	83.368	7.129	74.302
7.030	93.326	7.080	83.177	7.130	74.131
7.031	93.111	7.081	82.985	7.131	73.961
7.032	92.897	7.082	82.794	7.132	73.791
7.033	92.683	7.083	82.604	7.133	73.621
7.034	92.470	7.084	82.414	7.134	73.452
7.035	92.257	7.085	82.224	7.135	73.283
7.036	92.045	7.086	82.035	7.136	73.114
7.037	91.833	7.087	81.847	7.137	72.946
7.038	91.622	7.088	81.658	7.138	72.778
7.039	91.411	7.089	81.471	7.139	72.611
7.040	91.201	7.090	81.283	7.140	72.444
7.041	90.991	7.091	81.096	7.141	72.277
7.042	90.782	7.092	80.910	7.142	72.111
7.043	90.573	7.093	80.724	7.143	71.945
7.044	90.365	7.094	80.538	7.144	71.780
7.045	90.157	7.095	80.353	7.145	71.615
7.046	89.950	7.096	80.168	7.146	71.450
7.047	89.743	7.097	79.984	7.147	71.286
7.048	89.537	7.098	79.800	7.148	71.122
7.049	89.331	7.099	79.616	7.149	70.958

pH values 7.150 - 7.299

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
7.150	70.795	7.200	63.096	7.250	56.235
7.151	70.632	7.201	62.951	7.251	56.105
7.152	70.470	7.202	62.806	7.252	55.976
7.153	70.308	7.203	62.662	7.253	55.847
7.154	70.146	7.204	62.518	7.254	55.719
7.155	69.985	7.205	62.374	7.255	55.591
7.156	69.824	7.206	62.230	7.256	55.463
7.157	69.663	7.207	62.087	7.257	55.335
7.158	69.503	7.208	61.944	7.258	55.208
7.159	69.343	7.209	61.802	7.259	55.081
7.160	69.183	7.210	61.660	7.260	54.955
7.161	69.024	7.211	61.518	7.261	54.828
7.162	68.866	7.212	61.377	7.262	54.702
7.163	68.707	7.213	61.235	7.263	54.576
7.164	68.549	7.214	61.095	7.264	54.451
7.165	68.391	7.215	60.954	7.265	54.325
7.166	68.234	7.216	60.814	7.266	54.201
7.167	68.077	7.217	60.674	7.267	54.076
7.168	67.921	7.218	60.534	7.268	53.951
7.169	67.764	7.219	60.395	7.269	53.827
7.170	67.609	7.220	60.256	7.270	53.704
7.171	67.453	7.221	60.118	7.271	53.580
7.172	67.298	7.222	59.980	7.272	53.457
7.173	67.143	7.223	59.842	7.273	53.334
7.174	66.989	7.224	59.704	7.274	53.211
7.175	66.835	7.225	59.567	7.275	53.089
7.176	66.681	7.226	59.430	7.276	52.967
7.177	66.528	7.227	59.293	7.277	52.845
7.178	66.375	7.228	59.157	7.278	52.723
7.179	66.222	7.229	59.021	7.279	52.602
7.180	66.070	7.230	58.885	7.280	52.481
7.181	65.918	7.231	58.749	7.281	52.360
7.182	65.766	7.232	58.614	7.282	52.240
7.183	65.615	7.233	58.479	7.283	52.120
7.184	65.464	7.234	58.345	7.284	52.000
7.185	65.313	7.235	58.211	7.285	51.880
7.186	65.163	7.236	58.077	7.286	51.761
7.187	65.013	7.237	57.943	7.287	51.642
7.188	64.864	7.238	57.810	7.288	51.523
7.189	64.715	7.239	57.677	7.289	51.405
7.190	64.566	7.240	57.544	7.290	51.287
7.191	64.417	7.241	57.412	7.291	51.169
7.192	64.269	7.242	57.280	7.292	51.051
7.193	64.121	7.243	57.148	7.293	50.934
7.194	63.974	7.244	57.017	7.294	50.816
7.195	63.827	7.245	56.886	7.295	50.700
7.196	63.680	7.246	56.755	7.296	50.583
7.197	63.533	7.247	56.624	7.297	50.467
7.198	63.387	7.248	56.494	7.298	50.351
7.199	63.242	7.249	56.364	7.299	50.235

pH values 7.300 – 7.449

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
7.300	50.119	7.350	44.669	7.400	39.811
7.301	50.004	7.351	44.566	7.401	39.720
7.302	49.889	7.352	44.464	7.402	39.628
7.303	49.774	7.353	44.361	7.403	39.537
7.304	49.660	7.354	44.259	7.404	39.446
7.305	49.545	7.355	44.158	7.405	39.355
7.306	49.432	7.356	44.056	7.406	39.265
7.307	49.318	7.357	43.955	7.407	39.175
7.308	49.204	7.358	43.854	7.408	39.085
7.309	49.091	7.359	43.753	7.409	38.995
7.310	48.978	7.360	43.652	7.410	38.905
7.311	48.866	7.361	43.552	7.411	38.816
7.312	48.753	7.362	43.451	7.412	38.726
7.313	48.641	7.363	43.352	7.413	38.637
7.314	48.529	7.364	43.252	7.414	38.548
7.315	48.418	7.365	43.152	7.415	38.460
7.316	48.306	7.366	43.053	7.416	38.371
7.317	48.195	7.367	42.954	7.417	38.283
7.318	48.084	7.368	42.855	7.418	38.195
7.319	47.974	7.369	42.757	7.419	38.107
7.320	47.863	7.370	42.658	7.420	38.019
7.321	47.753	7.371	42.560	7.421	37.932
7.322	47.644	7.372	42.462	7.422	37.845
7.323	47.534	7.373	42.365	7.423	37.758
7.324	47.425	7.374	42.267	7.424	37.671
7.325	47.316	7.375	42.170	7.425	37.584
7.326	47.207	7.376	42.073	7.426	37.498
7.327	47.098	7.377	41.976	7.427	37.412
7.328	46.990	7.378	41.880	7.428	37.325
7.329	46.882	7.379	41.784	7.429	37.240
7.330	46.774	7.380	41.687	7.430	37.154
7.331	46.666	7.381	41.592	7.431	37.069
7.332	46.559	7.382	41.496	7.432	36.983
7.333	46.452	7.383	41.400	7.433	36.898
7.334	46.345	7.384	41.305	7.434	36.813
7.335	46.239	7.385	41.210	7.435	36.729
7.336	46.132	7.386	41.115	7.436	36.644
7.337	46.026	7.387	41.021	7.437	36.560
7.338	45.920	7.388	40.927	7.438	36.476
7.339	45.815	7.389	40.832	7.439	36.392
7.340	45.709	7.390	40.738	7.440	36.308
7.341	45.604	7.391	40.645	7.441	36.225
7.342	45.499	7.392	40.551	7.442	36.141
7.343	45.395	7.393	40.458	7.443	36.058
7.344	45.290	7.394	40.365	7.444	35.975
7.345	45.186	7.395	40.272	7.445	35.893
7.346	45.082	7.396	40.180	7.446	35.810
7.347	44.978	7.397	40.087	7.447	35.728
7.348	44.875	7.398	39.995	7.448	35.646
7.349	44.772	7.399	39.903	7.449	35.564

pH values 7.450 – 7.599

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
7.450	35.482	7.500	31.623	7.550	28.184
7.451	35.400	7.501	31.551	7.551	28.119
7.452	35.319	7.502	31.478	7.552	28.055
7.453	35.238	7.503	31.406	7.553	27.990
7.454	35.157	7.504	31.333	7.554	27.926
7.455	35.076	7.505	31.261	7.555	27.862
7.456	34.995	7.506	31.189	7.556	27.798
7.457	34.915	7.507	31.118	7.557	27.734
7.458	34.834	7.508	31.046	7.558	27.670
7.459	34.754	7.509	30.975	7.559	27.606
7.460	34.674	7.510	30.903	7.560	27.543
7.461	34.594	7.511	30.832	7.561	27.479
7.462	34.515	7.512	30.761	7.562	27.416
7.463	34.435	7.513	30.691	7.563	27.353
7.464	34.356	7.514	30.620	7.564	27.290
7.465	34.277	7.515	30.550	7.565	27.227
7.466	34.198	7.516	30.479	7.566	27.165
7.467	34.120	7.517	30.409	7.567	27.102
7.468	34.041	7.518	30.339	7.568	27.040
7.469	33.963	7.519	30.270	7.569	26.978
7.470	33.885	7.520	30.200	7.570	26.916
7.471	33.807	7.521	30.131	7.571	26.854
7.472	33.729	7.522	30.061	7.572	26.792
7.473	33.652	7.523	29.992	7.573	26.731
7.474	33.574	7.524	29.923	7.574	26.669
7.475	33.497	7.525	29.854	7.575	26.608
7.476	33.420	7.526	29.786	7.576	26.547
7.477	33.343	7.527	29.717	7.577	26.485
7.478	33.266	7.528	29.649	7.578	26.425
7.479	33.190	7.529	29.581	7.579	26.364
7.480	33.114	7.530	29.513	7.580	26.303
7.481	33.037	7.531	29.445	7.581	26.243
7.482	32.961	7.532	29.377	7.582	26.182
7.483	32.886	7.533	29.309	7.583	26.122
7.484	32.810	7.534	29.242	7.584	26.062
7.485	32.735	7.535	29.175	7.585	26.002
7.486	32.659	7.536	29.108	7.586	25.942
7.487	32.584	7.537	29.041	7.587	25.883
7.488	32.509	7.538	28.974	7.588	25.823
7.489	32.434	7.539	28.907	7.589	25.764
7.490	32.360	7.540	28.841	7.590	25.704
7.491	32.285	7.541	28.774	7.591	25.645
7.492	32.211	7.542	28.708	7.592	25.586
7.493	32.137	7.543	28.642	7.593	25.527
7.494	32.063	7.544	28.576	7.594	25.469
7.495	31.989	7.545	28.511	7.595	25.410
7.496	31.916	7.546	28.445	7.596	25.352
7.497	31.842	7.547	28.380	7.597	25.293
7.498	31.769	7.548	28.314	7.598	25.235
7.499	31.696	7.549	28.249	7.599	25.177

pH values 7.600 – 7.749

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
7.600	25.119	7.650	22.388	7.700	19.953
7.601	25.062	7.651	22.336	7.701	19.907
7.602	25.004	7.652	22.285	7.702	19.861
7.603	24.946	7.653	22.234	7.703	19.816
7.604	24.889	7.654	22.182	7.704	19.770
7.605	24.832	7.655	22.131	7.705	19.725
7.606	24.775	7.656	22.080	7.706	19.679
7.607	24.718	7.657	22.030	7.707	19.634
7.608	24.661	7.658	21.979	7.708	19.589
7.609	24.604	7.659	21.928	7.709	19.544
7.610	24.548	7.660	21.878	7.710	19.499
7.611	24.491	7.661	21.828	7.711	19.454
7.612	24.435	7.662	21.778	7.712	19.409
7.613	24.379	7.663	21.727	7.713	19.365
7.614	24.322	7.664	21.677	7.714	19.320
7.615	24.267	7.665	21.628	7.715	19.276
7.616	24.211	7.666	21.578	7.716	19.231
7.617	24.155	7.667	21.528	7.717	19.187
7.618	24.099	7.668	21.479	7.718	19.143
7.619	24.044	7.669	21.429	7.719	19.099
7.620	23.989	7.670	21.380	7.720	19.055
7.621	23.934	7.671	21.331	7.721	19.011
7.622	23.879	7.672	21.282	7.722	18.967
7.623	23.824	7.673	21.233	7.723	18.924
7.624	23.769	7.674	21.184	7.724	18.880
7.625	23.714	7.675	21.135	7.725	18.837
7.626	23.660	7.676	21.087	7.726	18.794
7.627	23.605	7.677	21.038	7.727	18.750
7.628	23.551	7.678	20.990	7.728	18.707
7.629	23.497	7.679	20.942	7.729	18.664
7.630	23.443	7.680	20.893	7.730	18.621
7.631	23.389	7.681	20.845	7.731	18.578
7.632	23.335	7.682	20.797	7.732	18.536
7.633	23.281	7.683	20.750	7.733	18.493
7.634	23.228	7.684	20.702	7.734	18.451
7.635	23.174	7.685	20.654	7.735	18.408
7.636	23.121	7.686	20.607	7.736	18.366
7.637	23.068	7.687	20.559	7.737	18.324
7.638	23.015	7.688	20.512	7.738	18.281
7.639	22.962	7.689	20.465	7.739	18.239
7.640	22.909	7.690	20.418	7.740	18.197
7.641	22.856	7.691	20.371	7.741	18.156
7.642	22.804	7.692	20.324	7.742	18.114
7.643	22.751	7.693	20.277	7.743	18.072
7.644	22.699	7.694	20.231	7.744	18.031
7.645	22.647	7.695	20.184	7.745	17.989
7.646	22.595	7.696	20.138	7.746	17.948
7.647	22.543	7.697	20.091	7.747	17.906
7.648	22.491	7.698	20.045	7.748	17.865
7.649	22.439	7.699	19.999	7.749	17.824

pH values 7.750 - 7.899

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
7.750	17.783	7.800	15.849	7.850	14.126
7.751	17.742	7.801	15.813	7.851	14.093
7.752	17.701	7.802	15.776	7.852	14.061
7.753	17.661	7.803	15.740	7.853	14.028
7.754	17.620	7.804	15.704	7.854	13.996
7.755	17.580	7.805	15.668	7.855	13.964
7.756	17.539	7.806	15.632	7.856	13.932
7.757	17.499	7.807	15.596	7.857	13.900
7.758	17.459	7.808	15.560	7.858	13.868
7.759	17.418	7.809	15.524	7.859	13.836
7.760	17.378	7.810	15.489	7.860	13.804
7.761	17.338	7.811	15.453	7.861	13.772
7.762	17.299	7.812	15.417	7.862	13.741
7.763	17.259	7.813	15.382	7.863	13.709
7.764	17.219	7.814	15.347	7.864	13.678
7.765	17.179	7.815	15.311	7.865	13.646
7.766	17.140	7.816	15.276	7.866	13.615
7.767	17.101	7.817	15.241	7.867	13.583
7.768	17.061	7.818	15.206	7.868	13.552
7.769	17.022	7.819	15.171	7.869	13.521
7.770	16.983	7.820	15.136	7.870	13.490
7.771	16.944	7.821	15.101	7.871	13.459
7.772	16.905	7.822	15.066	7.872	13.428
7.773	16.866	7.823	15.032	7.873	13.397
7.774	16.827	7.824	14.997	7.874	13.366
7.775	16.788	7.825	14.963	7.875	13.336
7.776	16.750	7.826	14.928	7.876	13.305
7.777	16.711	7.827	14.894	7.877	13.274
7.778	16.673	7.828	14.860	7.878	13.244
7.779	16.635	7.829	14.826	7.879	13.213
7.780	16.596	7.830	14.791	7.880	13.183
7.781	16.558	7.831	14.757	7.881	13.153
7.782	16.520	7.832	14.723	7.882	13.122
7.783	16.482	7.833	14.690	7.883	13.092
7.784	16.444	7.834	14.656	7.884	13.062
7.785	16.406	7.835	14.622	7.885	13.032
7.786	16.369	7.836	14.589	7.886	13.002
7.787	16.331	7.837	14.555	7.887	12.972
7.788	16.293	7.838	14.521	7.888	12.942
7.789	16.256	7.839	14.488	7.889	12.913
7.790	16.218	7.840	14.455	7.890	12.883
7.791	16.181	7.841	14.422	7.891	12.853
7.792	16.144	7.842	14.388	7.892	12.824
7.793	16.107	7.843	14.355	7.893	12.794
7.794	16.070	7.844	14.322	7.894	12.765
7.795	16.033	7.845	14.289	7.895	12.735
7.796	15.996	7.846	14.256	7.896	12.706
7.797	15.959	7.847	14.224	7.897	12.677
7.798	15.922	7.848	14.191	7.898	12.648
7.799	15.886	7.849	14.158	7.899	12.619

pH values 7.900 - 7.999

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
7.900	12.590	7.950	11.221
7.901	12.561	7.951	11.195
7.902	12.532	7.952	11.169
7.903	12.503	7.953	11.143
7.904	12.474	7.954	11.118
7.905	12.445	7.955	11.092
7.906	12.417	7.956	11.067
7.907	12.388	7.957	11.041
7.908	12.360	7.958	11.016
7.909	12.331	7.959	10.990
7.910	12.303	7.960	10.965
7.911	12.275	7.961	10.940
7.912	12.246	7.962	10.915
7.913	12.218	7.963	10.890
7.914	12.190	7.964	10.865
7.915	12.162	7.965	10.840
7.916	12.134	7.966	10.815
7.917	12.106	7.967	10.790
7.918	12.078	7.968	10.765
7.919	12.051	7.969	10.740
7.920	12.023	7.970	10.716
7.921	11.995	7.971	10.691
7.922	11.968	7.972	10.666
7.923	11.940	7.973	10.642
7.924	11.913	7.974	10.617
7.925	11.885	7.975	10.593
7.926	11.858	7.976	10.568
7.927	11.831	7.977	10.544
7.928	11.804	7.978	10.520
7.929	11.776	7.979	10.496
7.930	11.749	7.980	10.472
7.931	11.722	7.981	10.448
7.932	11.695	7.982	10.423
7.933	11.668	7.983	10.400
7.934	11.642	7.984	10.376
7.935	11.615	7.985	10.352
7.936	11.588	7.986	10.328
7.937	11.561	7.987	10.304
7.938	11.535	7.988	10.280
7.939	11.508	7.989	10.257
7.940	11.482	7.990	10.233
7.941	11.455	7.991	10.210
7.942	11.429	7.992	10.186
7.943	11.403	7.993	10.163
7.944	11.377	7.994	10.139
7.945	11.350	7.995	10.116
7.946	11.324	7.996	10.093
7.947	11.298	7.997	10.070
7.948	11.272	7.998	10.046
7.949	11.246	7.999	10.023

pH values 8.000 – 8.149

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
8.000	10.0000	8.050	8.9126	8.100	7.9434
8.001	9.9770	8.051	8.8921	8.101	7.9251
8.002	9.9541	8.052	8.8716	8.102	7.9069
8.003	9.9312	8.053	8.8512	8.103	7.8887
8.004	9.9083	8.054	8.8309	8.104	7.8706
8.005	9.8855	8.055	8.8106	8.105	7.8525
8.006	9.8628	8.056	8.7903	8.106	7.8344
8.007	9.8401	8.057	8.7701	8.107	7.8164
8.008	9.8175	8.058	8.7499	8.108	7.7984
8.009	9.7949	8.059	8.7298	8.109	7.7805
8.010	9.7724	8.060	8.7097	8.110	7.7626
8.011	9.7499	8.061	8.6897	8.111	7.7448
8.012	9.7275	8.062	8.6697	8.112	7.7270
8.013	9.7051	8.063	8.6498	8.113	7.7092
8.014	9.6828	8.064	8.6299	8.114	7.6915
8.015	9.6605	8.065	8.6100	8.115	7.6738
8.016	9.6383	8.066	8.5902	8.116	7.6561
8.017	9.6162	8.067	8.5705	8.117	7.6385
8.018	9.5940	8.068	8.5508	8.118	7.6209
8.019	9.5720	8.069	8.5311	8.119	7.6034
8.020	9.5500	8.070	8.5115	8.120	7.5859
8.021	9.5280	8.071	8.4919	8.121	7.5685
8.022	9.5061	8.072	8.4724	8.122	7.5511
8.023	9.4842	8.073	8.4529	8.123	7.5337
8.024	9.4624	8.074	8.4335	8.124	7.5164
8.025	9.4406	8.075	8.4141	8.125	7.4991
8.026	9.4189	8.076	8.3947	8.126	7.4819
8.027	9.3973	8.077	8.3754	8.127	7.4646
8.028	9.3757	8.078	8.3561	8.128	7.4475
8.029	9.3541	8.079	8.3369	8.129	7.4304
8.030	9.3326	8.080	8.3177	8.130	7.4133
8.031	9.3111	8.081	8.2986	8.131	7.3962
8.032	9.2897	8.082	8.2795	8.132	7.3792
8.033	9.2683	8.083	8.2605	8.133	7.3622
8.034	9.2470	8.084	8.2415	8.134	7.3453
8.035	9.2258	8.085	8.2225	8.135	7.3284
8.036	9.2046	8.086	8.2036	8.136	7.3116
8.037	9.1834	8.087	8.1848	8.137	7.2947
8.038	9.1623	8.088	8.1659	8.138	7.2780
8.039	9.1412	8.089	8.1472	8.139	7.2612
8.040	9.1202	8.090	8.1284	8.140	7.2445
8.041	9.0992	8.091	8.1097	8.141	7.2279
8.042	9.0783	8.092	8.0911	8.142	7.2112
8.043	9.0574	8.093	8.0725	8.143	7.1947
8.044	9.0366	8.094	8.0539	8.144	7.1781
8.045	9.0158	8.095	8.0354	8.145	7.1616
8.046	8.9950	8.096	8.0169	8.146	7.1451
8.047	8.9744	8.097	7.9985	8.147	7.1287
8.048	8.9537	8.098	7.9801	8.148	7.1123
8.049	8.9331	8.099	7.9617	8.149	7.0960

pH values 8.150 – 8.299

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
8.150	7.0796	8.200	6.3098	8.250	5.6236
8.151	7.0634	8.201	6.2953	8.251	5.6107
8.152	7.0471	8.202	6.2808	8.252	5.5978
8.153	7.0309	8.203	6.2664	8.253	5.5849
8.154	7.0147	8.204	6.2519	8.254	5.5721
8.155	6.9986	8.205	6.2376	8.255	5.5593
8.156	6.9825	8.206	6.2232	8.256	5.5465
8.157	6.9664	8.207	6.2089	8.257	5.5337
8.158	6.9504	8.208	6.1946	8.258	5.5210
8.159	6.9344	8.209	6.1804	8.259	5.5083
8.160	6.9185	8.210	6.1662	8.260	5.4956
8.161	6.9026	8.211	6.1520	8.261	5.4830
8.162	6.8867	8.212	6.1378	8.262	5.4704
8.163	6.8709	8.213	6.1237	8.263	5.4578
8.164	6.8551	8.214	6.1096	8.264	5.4453
8.165	6.8393	8.215	6.0956	8.265	5.4327
8.166	6.8236	8.216	6.0816	8.266	5.4202
8.167	6.8079	8.217	6.0676	8.267	5.4078
8.168	6.7922	8.218	6.0536	8.268	5.3953
8.169	6.7766	8.219	6.0397	8.269	5.3829
8.170	6.7610	8.220	6.0258	8.270	5.3706
8.171	6.7455	8.221	6.0120	8.271	5.3582
8.172	6.7300	8.222	5.9981	8.272	5.3459
8.173	6.7145	8.223	5.9843	8.273	5.3336
8.174	6.6990	8.224	5.9706	8.274	5.3213
8.175	6.6836	8.225	5.9568	8.275	5.3091
8.176	6.6683	8.226	5.9431	8.276	5.2969
8.177	6.6529	8.227	5.9295	8.277	5.2847
8.178	6.6376	8.228	5.9158	8.278	5.2725
8.179	6.6224	8.229	5.9022	8.279	5.2604
8.180	6.6071	8.230	5.8887	8.280	5.2483
8.181	6.5919	8.231	5.8751	8.281	5.2362
8.182	6.5768	8.232	5.8616	8.282	5.2242
8.183	6.5617	8.233	5.8481	8.283	5.2122
8.184	6.5466	8.234	5.8347	8.284	5.2002
8.185	6.5315	8.235	5.8213	8.285	5.1882
8.186	6.5165	8.236	5.8079	8.286	5.1763
8.187	6.5015	8.237	5.7945	8.287	5.1644
8.188	6.4865	8.238	5.7812	8.288	5.1525
8.189	6.4716	8.239	5.7679	8.289	5.1407
8.190	6.4567	8.240	5.7546	8.290	5.1289
8.191	6.4419	8.241	5.7414	8.291	5.1171
8.192	6.4271	8.242	5.7282	8.292	5.1053
8.193	6.4123	8.243	5.7150	8.293	5.0936
8.194	6.3976	8.244	5.7019	8.294	5.0818
8.195	6.3828	8.245	5.6888	8.295	5.0702
8.196	6.3682	8.246	5.6757	8.296	5.0585
8.197	6.3535	8.247	5.6626	8.297	5.0469
8.198	6.3389	8.248	5.6496	8.298	5.0353
8.199	6.3243	8.249	5.6366	8.299	5.0237

pH values 8.300 – 8.449

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
8.300	5.0121	8.350	4.4671	8.400	3.9813
8.301	5.0006	8.351	4.4568	8.401	3.9722
8.302	4.9891	8.352	4.4466	8.402	3.9630
8.303	4.9776	8.353	4.4363	8.403	3.9539
8.304	4.9662	8.354	4.4261	8.404	3.9448
8.305	4.9548	8.355	4.4160	8.405	3.9358
8.306	4.9434	8.356	4.4058	8.406	3.9267
8.307	4.9320	8.357	4.3957	8.407	3.9177
8.308	4.9206	8.358	4.3856	8.408	3.9087
8.309	4.9093	8.359	4.3755	8.409	3.8997
8.310	4.8980	8.360	4.3654	8.410	3.8907
8.311	4.8868	8.361	4.3554	8.411	3.8818
8.312	4.8755	8.362	4.3454	8.412	3.8728
8.313	4.8643	8.363	4.3354	8.413	3.8639
8.314	4.8531	8.364	4.3254	8.414	3.8550
8.315	4.8420	8.365	4.3155	8.415	3.8462
8.316	4.8308	8.366	4.3055	8.416	3.8373
8.317	4.8197	8.367	4.2956	8.417	3.8285
8.318	4.8086	8.368	4.2857	8.418	3.8197
8.319	4.7976	8.369	4.2759	8.419	3.8109
8.320	4.7866	8.370	4.2661	8.420	3.8022
8.321	4.7755	8.371	4.2562	8.421	3.7934
8.322	4.7646	8.372	4.2465	8.422	3.7847
8.323	4.7536	8.373	4.2367	8.423	3.7760
8.324	4.7427	8.374	4.2269	8.424	3.7673
8.325	4.7318	8.375	4.2172	8.425	3.7586
8.326	4.7209	8.376	4.2075	8.426	3.7500
8.327	4.7100	8.377	4.1979	8.427	3.7414
8.328	4.6992	8.378	4.1882	8.428	3.7328
8.329	4.6884	8.379	4.1786	8.429	3.7242
8.330	4.6776	8.380	4.1690	8.430	3.7156
8.331	4.6669	8.381	4.1594	8.431	3.7071
8.332	4.6561	8.382	4.1498	8.432	3.6985
8.333	4.6454	8.383	4.1403	8.433	3.6900
8.334	4.6347	8.384	4.1307	8.434	3.6816
8.335	4.6241	8.385	4.1212	8.435	3.6731
8.336	4.6134	8.386	4.1118	8.436	3.6646
8.337	4.6028	8.387	4.1023	8.437	3.6562
8.338	4.5922	8.388	4.0929	8.438	3.6478
8.339	4.5817	8.389	4.0835	8.439	3.6394
8.340	4.5711	8.390	4.0741	8.440	3.6310
8.341	4.5606	8.391	4.0647	8.441	3.6227
8.342	4.5501	8.392	4.0554	8.442	3.6144
8.343	4.5397	8.393	4.0460	8.443	3.6061
8.344	4.5292	8.394	4.0367	8.444	3.5978
8.345	4.5188	8.395	4.0274	8.445	3.5895
8.346	4.5084	8.396	4.0182	8.446	3.5812
8.347	4.4981	8.397	4.0089	8.447	3.5730
8.348	4.4877	8.398	3.9997	8.448	3.5648
8.349	4.4774	8.399	3.9905	8.449	3.5566

pH values 8.450 – 8.599

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
8.450	3.5484	8.500	3.1625	8.550	2.8186
8.451	3.5402	8.501	3.1553	8.551	2.8122
8.452	3.5321	8.502	3.1480	8.552	2.8057
8.453	3.5240	8.503	3.1408	8.553	2.7992
8.454	3.5159	8.504	3.1335	8.554	2.7928
8.455	3.5078	8.505	3.1263	8.555	2.7864
8.456	3.4997	8.506	3.1192	8.556	2.7800
8.457	3.4917	8.507	3.1120	8.557	2.7736
8.458	3.4836	8.508	3.1048	8.558	2.7672
8.459	3.4756	8.509	3.0977	8.559	2.7608
8.460	3.4676	8.510	3.0906	8.560	2.7545
8.461	3.4597	8.511	3.0835	8.561	2.7482
8.462	3.4517	8.512	3.0764	8.562	2.7418
8.463	3.4438	8.513	3.0693	8.563	2.7355
8.464	3.4358	8.514	3.0622	8.564	2.7292
8.465	3.4279	8.515	3.0552	8.565	2.7230
8.466	3.4201	8.516	3.0482	8.566	2.7167
8.467	3.4122	8.517	3.0411	8.567	2.7104
8.468	3.4043	8.518	3.0342	8.568	2.7042
8.469	3.3965	8.519	3.0272	8.569	2.6980
8.470	3.3887	8.520	3.0202	8.570	2.6918
8.471	3.3809	8.521	3.0133	8.571	2.6856
8.472	3.3731	8.522	3.0063	8.572	2.6794
8.473	3.3654	8.523	2.9994	8.573	2.6733
8.474	3.3576	8.524	2.9925	8.574	2.6671
8.475	3.3499	8.525	2.9856	8.575	2.6610
8.476	3.3422	8.526	2.9788	8.576	2.6549
8.477	3.3345	8.527	2.9719	8.577	2.6488
8.478	3.3269	8.528	2.9651	8.578	2.6427
8.479	3.3192	8.529	2.9583	8.579	2.6366
8.480	3.3116	8.530	2.9515	8.580	2.6305
8.481	3.3040	8.531	2.9447	8.581	2.6245
8.482	3.2964	8.532	2.9379	8.582	2.6184
8.483	3.2888	8.533	2.9312	8.583	2.6124
8.484	3.2812	8.534	2.9244	8.584	2.6064
8.485	3.2737	8.535	2.9177	8.585	2.6004
8.486	3.2661	8.536	2.9110	8.586	2.5944
8.487	3.2586	8.537	2.9043	8.587	2.5885
8.488	3.2511	8.538	2.8976	8.588	2.5825
8.489	3.2437	8.539	2.8909	8.589	2.5766
8.490	3.2362	8.540	2.8843	8.590	2.5706
8.491	3.2288	8.541	2.8777	8.591	2.5647
8.492	3.2213	8.542	2.8710	8.592	2.5588
8.493	3.2139	8.543	2.8644	8.593	2.5530
8.494	3.2065	8.544	2.8578	8.594	2.5471
8.495	3.1992	8.545	2.8513	8.595	2.5412
8.496	3.1918	8.546	2.8447	8.596	2.5354
8.497	3.1845	8.547	2.8382	8.597	2.5295
8.498	3.1771	8.548	2.8317	8.598	2.5237
8.499	3.1698	8.549	2.8251	8.599	2.5179

pH values 8.600 – 8.749

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
8.600	2.5121	8.650	2.2390	8.700	1.9955
8.601	2.5064	8.651	2.2338	8.701	1.9909
8.602	2.5006	8.652	2.2287	8.702	1.9863
8.603	2.4948	8.653	2.2236	8.703	1.9818
8.604	2.4891	8.654	2.2184	8.704	1.9772
8.605	2.4834	8.655	2.2133	8.705	1.9727
8.606	2.4777	8.656	2.2082	8.706	1.9681
8.607	2.4720	8.657	2.2032	8.707	1.9636
8.608	2.4663	8.658	2.1981	8.708	1.9591
8.609	2.4606	8.659	2.1930	8.709	1.9546
8.610	2.4550	8.660	2.1880	8.710	1.9501
8.611	2.4493	8.661	2.1830	8.711	1.9456
8.612	2.4437	8.662	2.1780	8.712	1.9411
8.613	2.4381	8.663	2.1729	8.713	1.9367
8.614	2.4325	8.664	2.1679	8.714	1.9322
8.615	2.4269	8.665	2.1630	8.715	1.9278
8.616	2.4213	8.666	2.1580	8.716	1.9233
8.617	2.4157	8.667	2.1530	8.717	1.9189
8.618	2.4102	8.668	2.1481	8.718	1.9145
8.619	2.4046	8.669	2.1431	8.719	1.9101
8.620	2.3991	8.670	2.1382	8.720	1.9057
8.621	2.3936	8.671	2.1333	8.721	1.9013
8.622	2.3881	8.672	2.1284	8.722	1.8969
8.623	2.3826	8.673	2.1235	8.723	1.8926
8.624	2.3771	8.674	2.1186	8.724	1.8882
8.625	2.3716	8.675	2.1137	8.725	1.8839
8.626	2.3662	8.676	2.1089	8.726	1.8795
8.627	2.3607	8.677	2.1040	8.727	1.8752
8.628	2.3553	8.678	2.0992	8.728	1.8709
8.629	2.3499	8.679	2.0943	8.729	1.8666
8.630	2.3445	8.680	2.0895	8.730	1.8623
8.631	2.3391	8.681	2.0847	8.731	1.8580
8.632	2.3337	8.682	2.0799	8.732	1.8538
8.633	2.3283	8.683	2.0752	8.733	1.8495
8.634	2.3230	8.684	2.0704	8.734	1.8452
8.635	2.3176	8.685	2.0656	8.735	1.8410
8.636	2.3123	8.686	2.0609	8.736	1.8368
8.637	2.3070	8.687	2.0561	8.737	1.8325
8.638	2.3017	8.688	2.0514	8.738	1.8283
8.639	2.2964	8.689	2.0467	8.739	1.8241
8.640	2.2911	8.690	2.0420	8.740	1.8199
8.641	2.2858	8.691	2.0373	8.741	1.8157
8.642	2.2806	8.692	2.0326	8.742	1.8116
8.643	2.2753	8.693	2.0279	8.743	1.8074
8.644	2.2701	8.694	2.0233	8.744	1.8032
8.645	2.2649	8.695	2.0186	8.745	1.7991
8.646	2.2597	8.696	2.0140	8.746	1.7950
8.647	2.2545	8.697	2.0093	8.747	1.7908
8.648	2.2493	8.698	2.0047	8.748	1.7867
8.649	2.2441	8.699	2.0001	8.749	1.7826

pH values 8.750 – 8.899

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
8.750	1.7785	8.800	1.5851	8.850	1.4127
8.751	1.7744	8.801	1.5815	8.851	1.4095
8.752	1.7703	8.802	1.5778	8.852	1.4062
8.753	1.7663	8.803	1.5742	8.853	1.4030
8.754	1.7622	8.804	1.5706	8.854	1.3998
8.755	1.7581	8.805	1.5670	8.855	1.3966
8.756	1.7541	8.806	1.5634	8.856	1.3934
8.757	1.7501	8.807	1.5598	8.857	1.3902
8.758	1.7460	8.808	1.5562	8.858	1.3870
8.759	1.7420	8.809	1.5526	8.859	1.3838
8.760	1.7380	8.810	1.5490	8.860	1.3806
8.761	1.7340	8.811	1.5455	8.861	1.3774
8.762	1.7300	8.812	1.5419	8.862	1.3742
8.763	1.7261	8.813	1.5384	8.863	1.3711
8.764	1.7221	8.814	1.5348	8.864	1.3679
8.765	1.7181	8.815	1.5313	8.865	1.3648
8.766	1.7142	8.816	1.5278	8.866	1.3616
8.767	1.7102	8.817	1.5243	8.867	1.3585
8.768	1.7063	8.818	1.5208	8.868	1.3554
8.769	1.7024	8.819	1.5173	8.869	1.3523
8.770	1.6985	8.820	1.5138	8.870	1.3492
8.771	1.6946	8.821	1.5103	8.871	1.3461
8.772	1.6907	8.822	1.5068	8.872	1.3430
8.773	1.6868	8.823	1.5033	8.873	1.3399
8.774	1.6829	8.824	1.4999	8.874	1.3368
8.775	1.6790	8.825	1.4964	8.875	1.3337
8.776	1.6752	8.826	1.4930	8.876	1.3306
8.777	1.6713	8.827	1.4896	8.877	1.3276
8.778	1.6675	8.828	1.4861	8.878	1.3245
8.779	1.6636	8.829	1.4827	8.879	1.3215
8.780	1.6598	8.830	1.4793	8.880	1.3185
8.781	1.6560	8.831	1.4759	8.881	1.3154
8.782	1.6522	8.832	1.4725	8.882	1.3124
8.783	1.6484	8.833	1.4691	8.883	1.3094
8.784	1.6446	8.834	1.4658	8.884	1.3064
8.785	1.6408	8.835	1.4624	8.885	1.3034
8.786	1.6370	8.836	1.4590	8.886	1.3004
8.787	1.6333	8.837	1.4557	8.887	1.2974
8.788	1.6295	8.838	1.4523	8.888	1.2944
8.789	1.6258	8.839	1.4490	8.889	1.2914
8.790	1.6220	8.840	1.4456	8.890	1.2884
8.791	1.6183	8.841	1.4423	8.891	1.2855
8.792	1.6146	8.842	1.4390	8.892	1.2825
8.793	1.6109	8.843	1.4357	8.893	1.2796
8.794	1.6072	8.844	1.4324	8.894	1.2766
8.795	1.6035	8.845	1.4291	8.895	1.2737
8.796	1.5998	8.846	1.4258	8.896	1.2708
8.797	1.5961	8.847	1.4225	8.897	1.2678
8.798	1.5924	8.848	1.4193	8.898	1.2649
8.799	1.5888	8.849	1.4160	8.899	1.2620

pH values 8.900 – 8.999

pH	[H ⁺] nEq/L	pH	[H ⁺] nEq/L
8.900	1.2591	8.950	1.1222
8.901	1.2562	8.951	1.1196
8.902	1.2533	8.952	1.1170
8.903	1.2504	8.953	1.1145
8.904	1.2476	8.954	1.1119
8.905	1.2447	8.955	1.1094
8.906	1.2418	8.956	1.1068
8.907	1.2390	8.957	1.1043
8.908	1.2361	8.958	1.1017
8.909	1.2333	8.959	1.0992
8.910	1.2305	8.960	1.0967
8.911	1.2276	8.961	1.0941
8.912	1.2248	8.962	1.0916
8.913	1.2220	8.963	1.0891
8.914	1.2192	8.964	1.0866
8.915	1.2164	8.965	1.0841
8.916	1.2136	8.966	1.0816
8.917	1.2108	8.967	1.0791
8.918	1.2080	8.968	1.0766
8.919	1.2052	8.969	1.0742
8.920	1.2024	8.970	1.0717
8.921	1.1997	8.971	1.0692
8.922	1.1969	8.972	1.0668
8.923	1.1942	8.973	1.0643
8.924	1.1914	8.974	1.0619
8.925	1.1887	8.975	1.0594
8.926	1.1860	8.976	1.0570
8.927	1.1832	8.977	1.0546
8.928	1.1805	8.978	1.0521
8.929	1.1778	8.979	1.0497
8.930	1.1751	8.980	1.0473
8.931	1.1724	8.981	1.0449
8.932	1.1697	8.982	1.0425
8.933	1.1670	8.983	1.0401
8.934	1.1643	8.984	1.0377
8.935	1.1616	8.985	1.0353
8.936	1.1590	8.986	1.0329
8.937	1.1563	8.987	1.0306
8.938	1.1536	8.988	1.0282
8.939	1.1510	8.989	1.0258
8.940	1.1483	8.990	1.0235
8.941	1.1457	8.991	1.0211
8.942	1.1431	8.992	1.0188
8.943	1.1404	8.993	1.0164
8.944	1.1378	8.994	1.0141
8.945	1.1352	8.995	1.0117
8.946	1.1326	8.996	1.0094
8.947	1.1300	8.997	1.0071
8.948	1.1274	8.998	1.0048
8.949	1.1248	8.999	1.0025