

**A TREATISE ON  
TELEGRAPHY. VOL. III:  
TABLES AND FORMULAS**

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A Treatise on Telegraphy. Vol. III: Tables and Formulas by Various

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**VARIOUS**

**A TREATISE ON  
TELEGRAPHY. VOL. III:  
TABLES AND FORMULAS**



A TREATISE  
ON  
TELEGRAPHY

PREPARED FOR STUDENTS OF  
THE INTERNATIONAL CORRESPONDENCE SCHOOLS  
SCRANTON, PA.

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**Volume III**

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TABLES AND FORMULAS

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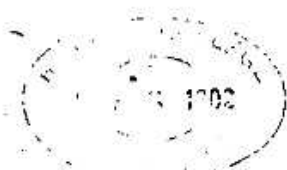
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## TABLES AND FORMULAS.

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This volume contains all the principal Tables, Rules, and Formulas occurring in the Instruction Papers of the Course. They have been collected and placed in this volume in order to make them convenient for ready reference, so that the student will not be obliged to search the Instruction Papers to find them.

The various Rules and Formulas are here grouped under the titles of the Instruction Papers in which they occur. Following each rule and formula are its number and also that of the article of the Instruction Paper in which it is discussed. Although these numbers do not run consecutively, they may be readily found in the text by noting to what Instruction Paper they belong. Thus: on page 126 of this volume, we see that the formula for "Insulation Resistance of a Line" is followed by "Art. 2522." Turning back the pages, we find that this formula occurs under the heading "Rules and Formulas Used in Electrical Measurements." Therefore, in Art. 2522 of the Instruction Paper *Electrical Measurements*, we shall find the discussion of the formula referred to.





TABLES  
OF  
NATURAL SINES, COSINES,  
TANGENTS,  
AND COTANGENTS

GIVING THE VALUES OF THE FUNCTIONS FOR  
ALL DEGREES AND MINUTES FROM  
 $0^{\circ}$  TO  $90^{\circ}$

... and the ...

... and the ...

... and the ...

... and the ...

... and the ...

... and the ...

... and the ...

... and the ...

... and the ...

NATURAL SINES AND COSINES.

°	0°		1°		2°		3°		4°		°
	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	
0	.00000	1.	.01745	.99985	.03490	.99935	.05234	.99863	.06976	.99756	60
1	.00017	.99983	.01747	.99984	.03510	.99938	.05263	.99861	.07005	.99754	59
2	.00034	.99966	.01750	.99981	.03540	.99937	.05292	.99860	.07034	.99753	58
3	.00051	.99949	.01752	.99983	.03577	.99935	.05321	.99858	.07063	.99750	57
4	.00068	.99932	.01755	.99983	.03606	.99935	.05350	.99857	.07092	.99748	56
5	.00085	.99915	.01757	.99982	.03635	.99934	.05379	.99855	.07121	.99745	55
6	.00102	.99898	.01760	.99982	.03664	.99933	.05408	.99854	.07150	.99744	54
7	.00119	.99881	.01762	.99981	.03693	.99932	.05437	.99853	.07179	.99742	53
8	.00136	.99864	.01765	.99980	.03722	.99931	.05466	.99851	.07208	.99740	52
9	.00153	.99847	.01767	.99979	.03751	.99930	.05495	.99850	.07237	.99738	51
10	.00170	.99830	.01770	.99977	.03781	.99929	.05524	.99847	.07266	.99736	50
11	.00187	.99813	.01772	.99976	.03810	.99927	.05553	.99846	.07295	.99734	49
12	.00204	.99796	.01775	.99975	.03839	.99926	.05582	.99844	.07324	.99731	48
13	.00221	.99779	.01777	.99974	.03868	.99925	.05611	.99842	.07353	.99729	47
14	.00238	.99762	.01780	.99973	.03897	.99924	.05640	.99841	.07382	.99727	46
15	.00255	.99745	.01782	.99972	.03926	.99923	.05669	.99839	.07411	.99725	45
16	.00272	.99728	.01785	.99971	.03955	.99922	.05698	.99838	.07440	.99723	44
17	.00289	.99711	.01787	.99970	.03984	.99921	.05727	.99836	.07469	.99721	43
18	.00306	.99694	.01790	.99969	.04013	.99920	.05756	.99834	.07498	.99719	42
19	.00323	.99677	.01792	.99968	.04042	.99919	.05785	.99833	.07527	.99717	41
20	.00340	.99660	.01795	.99967	.04071	.99917	.05814	.99831	.07556	.99714	40
21	.00357	.99643	.01797	.99966	.04100	.99916	.05843	.99829	.07585	.99712	39
22	.00374	.99626	.01800	.99965	.04129	.99915	.05872	.99827	.07614	.99710	38
23	.00391	.99609	.01802	.99964	.04158	.99913	.05901	.99826	.07643	.99707	37
24	.00408	.99592	.01805	.99963	.04187	.99912	.05930	.99824	.07672	.99705	36
25	.00425	.99575	.01807	.99962	.04216	.99911	.05959	.99823	.07701	.99703	35
26	.00442	.99558	.01810	.99961	.04245	.99910	.05988	.99821	.07730	.99701	34
27	.00459	.99541	.01812	.99960	.04274	.99909	.06017	.99820	.07759	.99699	33
28	.00476	.99524	.01815	.99959	.04303	.99907	.06046	.99818	.07788	.99696	32
29	.00493	.99507	.01817	.99958	.04332	.99906	.06075	.99817	.07817	.99694	31
30	.00510	.99490	.01820	.99957	.04361	.99905	.06104	.99815	.07846	.99692	30
31	.00527	.99473	.01822	.99956	.04390	.99904	.06133	.99814	.07875	.99689	29
32	.00544	.99456	.01825	.99955	.04419	.99902	.06162	.99812	.07904	.99687	28
33	.00561	.99439	.01827	.99954	.04448	.99901	.06191	.99811	.07933	.99685	27
34	.00578	.99422	.01830	.99953	.04477	.99900	.06220	.99809	.07962	.99683	26
35	.00595	.99405	.01832	.99952	.04506	.99899	.06249	.99808	.07991	.99681	25
36	.00612	.99388	.01835	.99951	.04535	.99897	.06278	.99806	.08020	.99679	24
37	.00629	.99371	.01837	.99950	.04564	.99896	.06307	.99805	.08049	.99677	23
38	.00646	.99354	.01840	.99949	.04593	.99895	.06336	.99803	.08078	.99675	22
39	.00663	.99337	.01842	.99948	.04622	.99894	.06365	.99802	.08107	.99673	21
40	.00680	.99320	.01845	.99947	.04651	.99893	.06394	.99801	.08136	.99671	20
41	.00697	.99303	.01847	.99946	.04680	.99892	.06423	.99799	.08165	.99669	19
42	.00714	.99286	.01850	.99945	.04709	.99891	.06452	.99798	.08194	.99667	18
43	.00731	.99269	.01852	.99944	.04738	.99890	.06481	.99797	.08223	.99665	17
44	.00748	.99252	.01855	.99943	.04767	.99889	.06510	.99796	.08252	.99663	16
45	.00765	.99235	.01857	.99942	.04796	.99888	.06539	.99795	.08281	.99661	15
46	.00782	.99218	.01860	.99941	.04825	.99887	.06568	.99794	.08310	.99659	14
47	.00799	.99201	.01862	.99940	.04854	.99886	.06597	.99793	.08339	.99657	13
48	.00816	.99184	.01865	.99939	.04883	.99885	.06626	.99792	.08368	.99655	12
49	.00833	.99167	.01867	.99938	.04912	.99884	.06655	.99791	.08397	.99653	11
50	.00850	.99150	.01870	.99937	.04941	.99883	.06684	.99790	.08426	.99651	10
51	.00867	.99133	.01872	.99936	.04970	.99882	.06713	.99789	.08455	.99649	9
52	.00884	.99116	.01875	.99935	.05000	.99881	.06742	.99788	.08484	.99647	8
53	.00901	.99099	.01877	.99934	.05029	.99880	.06771	.99787	.08513	.99645	7
54	.00918	.99082	.01880	.99933	.05058	.99879	.06800	.99786	.08542	.99643	6
55	.00935	.99065	.01882	.99932	.05087	.99878	.06829	.99785	.08571	.99641	5
56	.00952	.99048	.01885	.99931	.05117	.99877	.06858	.99784	.08600	.99639	4
57	.00969	.99031	.01887	.99930	.05146	.99876	.06887	.99783	.08629	.99637	3
58	.00986	.99014	.01890	.99929	.05175	.99875	.06916	.99782	.08658	.99635	2
59	.01003	.99000	.01892	.99928	.05205	.99874	.06945	.99781	.08687	.99633	1
60	.01020	.98985	.01895	.99927	.05234	.99873	.06974	.99780	.08716	.99631	0
	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	Cosine	Sine	
	89°		88°		87°		86°		85°		