

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
0,00	1,00000	000	1,00000	000	1,00000	000	1,00000	001	1,00001	000
0,01	1,00005	001	1,00006	001	1,00007	001	1,00008	002	1,00010	001
0,02	1,00020	002	1,00022	002	1,00024	002	1,00026	003	1,00029	002
0,03	1,00045	003	1,00048	003	1,00051	003	1,00054	004	1,00058	003
0,04	1,00080	004	1,00084	004	1,00088	004	1,00092	005	1,00097	004
0,05	1,00125	005	1,00130	005	1,00135	005	1,00140	006	1,00146	005
0,06	1,00180	006	1,00186	006	1,00192	007	1,00199	006	1,00205	006
0,07	1,00245	007	1,00252	007	1,00259	008	1,00267	007	1,00274	007
0,08	1,00320	008	1,00328	008	1,00336	009	1,00345	008	1,00353	008
0,09	1,00405	009	1,00414	009	1,00423	010	1,00433	009	1,00442	010
0,10	1,00500	010	1,00510	011	1,00521	010	1,00531	010	1,00541	011
0,11	1,00606	011	1,00617	011	1,00628	011	1,00639	012	1,00651	011
0,12	1,00721	012	1,00733	012	1,00745	012	1,00757	013	1,00770	012
0,13	1,00846	013	1,00859	013	1,00872	014	1,00886	013	1,00899	014
0,14	1,00982	014	1,00996	014	1,01010	014	1,01024	015	1,01039	014
0,15	1,01127	015	1,01142	015	1,01157	016	1,01173	015	1,01188	016
0,16	1,01283	016	1,01299	016	1,01315	016	1,01331	017	1,01348	016
0,17	1,01448	018	1,01466	017	1,01483	017	1,01500	018	1,01518	017
0,18	1,01624	019	1,01643	018	1,01661	018	1,01679	019	1,01698	018
0,19	1,01810	020	1,01830	019	1,01849	019	1,01868	020	1,01888	019
0,20	1,02007	020	1,02027	020	1,02047	021	1,02068	020	1,02088	021
0,21	1,02213	021	1,02234	022	1,02256	021	1,02277	022	1,02299	021
0,22	1,02430	022	1,02452	022	1,02474	023	1,02497	022	1,02519	023
0,23	1,02657	023	1,02680	023	1,02703	024	1,02727	023	1,02750	024
0,24	1,02894	024	1,02918	025	1,02943	024	1,02967	025	1,02992	024
0,25	1,03141	026	1,03167	025	1,03192	026	1,03218	025	1,03243	026
0,26	1,03399	026	1,03425	027	1,03452	026	1,03478	027	1,03505	027
0,27	1,03667	028	1,03695	027	1,03722	028	1,03750	027	1,03777	028
0,28	1,03946	028	1,03974	029	1,04003	028	1,04031	029	1,04060	029
0,29	1,04235	029	1,04264	030	1,04294	029	1,04323	030	1,04353	030
0,30	1,04534	030	1,04564	031	1,04595	031	1,04626	030	1,04656	031
0,31	1,04844	031	1,04875	032	1,04907	032	1,04939	031	1,04970	032
0,32	1,05164	032	1,05196	033	1,05229	033	1,05262	033	1,05295	033
0,33	1,05495	033	1,05528	034	1,05562	034	1,05596	034	1,05630	034
0,34	1,05836	035	1,05871	034	1,05905	035	1,05940	035	1,05975	036
0,35	1,06188	036	1,06224	035	1,06259	036	1,06295	037	1,06332	036
0,36	1,06550	037	1,06587	037	1,06624	037	1,06661	037	1,06698	038
0,37	1,06923	038	1,06961	038	1,06999	038	1,07037	039	1,07076	038
0,38	1,07307	039	1,07346	039	1,07385	040	1,07425	039	1,07464	039
0,39	1,07702	040	1,07742	040	1,07782	040	1,07822	041	1,07863	040
0,40	1,08107	041	1,08148	042	1,08190	041	1,08231	041	1,08272	042
0,41	1,08523	043	1,08566	042	1,08608	042	1,08650	043	1,08693	043
0,42	1,08950	044	1,08994	043	1,09037	044	1,09081	043	1,09124	044
0,43	1,09388	045	1,09433	044	1,09477	045	1,09522	045	1,09567	044
0,44	1,09837	046	1,09883	045	1,09928	046	1,09974	046	1,10020	046
0,45	1,10297	047	1,10344	046	1,10390	047	1,10437	047	1,10484	047
0,46	1,10768	048	1,10816	047	1,10863	048	1,10911	048	1,10959	048
0,47	1,11250	049	1,11299	049	1,11348	049	1,11397	049	1,11446	049
0,48	1,11743	050	1,11793	050	1,11843	050	1,11893	050	1,11943	051
0,49	1,12247	051	1,12298	051	1,12349	052	1,12401	051	1,12452	051

Błąd przybliżeń podanych na str. 248 i 249 jest nie większy niż 0,000005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,00000515 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
1,00001	001	1,00002	000	1,00002	001	1,00003	001	1,00004	001	0,00
1,00011	002	1,00013	001	1,00014	002	1,00016	002	1,00018	002	0,01
1,00031	003	1,00034	002	1,00036	003	1,00039	003	1,00042	003	0,02
1,00061	004	1,00065	003	1,00068	004	1,00072	004	1,00076	004	0,03
1,00101	005	1,00106	004	1,00110	005	1,00115	005	1,00120	005	0,04
1,00151	006	1,00157	005	1,00162	006	1,00168	006	1,00174	006	0,05
1,00211	007	1,00218	007	1,00225	006	1,00231	007	1,00238	007	0,06
1,00281	008	1,00289	008	1,00297	007	1,00304	008	1,00312	008	0,07
1,00361	009	1,00370	009	1,00379	008	1,00387	009	1,00396	009	0,08
1,00452	009	1,00461	010	1,00471	010	1,00481	009	1,00490	010	0,09
1,00552	010	1,00562	011	1,00573	011	1,00584	011	1,00595	011	0,10
1,00662	012	1,00674	011	1,00685	012	1,00697	012	1,00709	012	0,11
1,00782	013	1,00795	013	1,00808	012	1,00820	013	1,00833	013	0,12
1,00913	013	1,00926	014	1,00940	014	1,00954	014	1,00968	014	0,13
1,01053	015	1,01068	014	1,01082	015	1,01097	015	1,01112	015	0,14
1,01204	015	1,01219	016	1,01235	016	1,01251	016	1,01267	016	0,15
1,01364	017	1,01381	017	1,01398	017	1,01415	016	1,01431	017	0,16
1,01535	018	1,01553	018	1,01571	017	1,01588	018	1,01606	018	0,17
1,01716	019	1,01735	019	1,01754	018	1,01772	019	1,01791	019	0,18
1,01907	020	1,01927	020	1,01947	020	1,01967	020	1,01987	020	0,19
1,02109	020	1,02129	021	1,02150	021	1,02171	021	1,02192	021	0,20
1,02320	022	1,02342	022	1,02364	022	1,02386	022	1,02408	022	0,21
1,02542	023	1,02565	023	1,02588	022	1,02610	024	1,02634	023	0,22
1,02774	024	1,02798	024	1,02822	024	1,02846	024	1,02870	024	0,23
1,03016	025	1,03041	025	1,03066	025	1,03091	025	1,03116	025	0,24
1,03269	026	1,03295	026	1,03321	026	1,03347	026	1,03373	026	0,25
1,03532	027	1,03559	027	1,03586	027	1,03613	027	1,03640	027	0,26
1,03805	028	1,03833	028	1,03861	028	1,03889	028	1,03917	029	0,27
1,04089	029	1,04118	029	1,04147	029	1,04176	029	1,04205	030	0,28
1,04383	030	1,04413	030	1,04443	030	1,04473	030	1,04503	031	0,29
1,04687	031	1,04718	032	1,04750	031	1,04781	031	1,04812	032	0,30
1,05002	032	1,05034	033	1,05067	032	1,05099	032	1,05131	033	0,31
1,05328	033	1,05361	033	1,05394	034	1,05428	033	1,05461	034	0,32
1,05664	034	1,05698	034	1,05732	035	1,05767	034	1,05801	035	0,33
1,06011	035	1,06046	035	1,06081	036	1,06117	035	1,06152	036	0,34
1,06368	036	1,06404	036	1,06440	037	1,06477	037	1,06514	036	0,35
1,06736	037	1,06773	037	1,06810	038	1,06848	038	1,06886	037	0,36
1,07114	038	1,07152	039	1,07191	039	1,07230	038	1,07268	039	0,37
1,07503	040	1,07543	039	1,07582	040	1,07622	040	1,07662	040	0,38
1,07903	041	1,07944	040	1,07984	041	1,08025	041	1,08066	041	0,39
1,08314	042	1,08356	041	1,08397	042	1,08439	042	1,08481	042	0,40
1,08736	042	1,08778	043	1,08821	043	1,08864	043	1,08907	043	0,41
1,09168	044	1,09212	044	1,09256	044	1,09300	044	1,09344	044	0,42
1,09611	045	1,09656	045	1,09701	046	1,09747	045	1,09792	045	0,43
1,10066	046	1,10112	046	1,10158	046	1,10204	047	1,10251	046	0,44
1,10531	047	1,10578	047	1,10625	048	1,10673	047	1,10720	048	0,45
1,11007	049	1,11056	048	1,11104	049	1,11153	048	1,11201	049	0,46
1,11495	049	1,11544	050	1,11594	049	1,11643	050	1,11693	050	0,47
1,11994	050	1,12044	051	1,12095	050	1,12145	051	1,12196	051	0,48
1,12503	052	1,12555	052	1,12607	052	1,12659	052	1,12711	052	0,49

cosh x

The error of the approximations given on pp. 248 and 249 is not greater than 0,000005 and the error of an approximation obtained by linear interpolation is less than 0,00000515 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
0,50	1,12763	052	1,12815	052	1,12867	052	1,12919	053	1,12972	053
0,51	1,13289	054	1,13343	053	1,13396	054	1,13450	053	1,13503	054
0,52	1,13827	055	1,13882	054	1,13936	055	1,13991	055	1,14046	055
0,53	1,14377	055	1,14432	056	1,14488	056	1,14544	056	1,14600	056
0,54	1,14938	056	1,14994	057	1,15051	057	1,15108	057	1,15165	058
0,55	1,15510	058	1,15568	058	1,15626	058	1,15684	058	1,15742	059
0,56	1,16094	059	1,16153	059	1,16212	060	1,16272	059	1,16331	059
0,57	1,16690	060	1,16750	060	1,16810	061	1,16871	060	1,16931	061
0,58	1,17297	061	1,17358	062	1,17420	061	1,17481	062	1,17543	062
0,59	1,17916	062	1,17978	063	1,18041	063	1,18104	063	1,18167	063
0,60	1,18547	063	1,18610	064	1,18674	064	1,18738	064	1,18802	064
0,61	1,19189	065	1,19254	065	1,19319	065	1,19384	065	1,19449	066
0,62	1,19844	066	1,19910	066	1,19976	066	1,20042	067	1,20109	066
0,63	1,20510	067	1,20577	068	1,20645	067	1,20712	068	1,20780	068
0,64	1,21189	068	1,21257	069	1,21326	069	1,21395	068	1,21463	069
0,65	1,21879	070	1,21949	070	1,22019	070	1,22089	070	1,22159	070
0,66	1,22582	071	1,22653	071	1,22724	071	1,22795	072	1,22867	071
0,67	1,23297	072	1,23369	073	1,23442	072	1,23514	073	1,23587	072
0,68	1,24025	073	1,24098	074	1,24172	073	1,24245	074	1,24319	074
0,69	1,24765	074	1,24839	075	1,24914	075	1,24989	075	1,25064	075
0,70	1,25517	076	1,25593	076	1,25669	076	1,25745	076	1,25821	077
0,71	1,26282	077	1,26359	077	1,26436	078	1,26514	077	1,26591	078
0,72	1,27059	079	1,27138	078	1,27216	079	1,27295	079	1,27374	079
0,73	1,27849	080	1,27929	080	1,28009	080	1,28089	080	1,28169	080
0,74	1,28652	081	1,28733	082	1,28815	081	1,28896	081	1,28977	082
0,75	1,29468	083	1,29551	082	1,29633	083	1,29716	082	1,29798	083
0,76	1,30297	084	1,30381	083	1,30464	084	1,30548	084	1,30632	084
0,77	1,31139	085	1,31224	085	1,31309	085	1,31394	085	1,31479	086
0,78	1,31994	086	1,32080	086	1,32166	087	1,32253	087	1,32340	086
0,79	1,32862	088	1,32950	087	1,33037	088	1,33125	088	1,33213	088
0,80	1,33743	089	1,33832	089	1,33921	090	1,34011	089	1,34100	089
0,81	1,34638	091	1,34729	090	1,34819	090	1,34909	091	1,35000	091
0,82	1,35547	091	1,35638	092	1,35730	092	1,35822	092	1,35914	092
0,83	1,36468	093	1,36561	093	1,36654	094	1,36748	093	1,36841	093
0,84	1,37404	094	1,37498	095	1,37593	094	1,37687	095	1,37782	095
0,85	1,38353	096	1,38449	096	1,38545	096	1,38641	096	1,38737	096
0,86	1,39316	097	1,39413	097	1,39510	098	1,39608	097	1,39705	098
0,87	1,40293	099	1,40392	098	1,40490	099	1,40589	099	1,40688	099
0,88	1,41284	100	1,41384	100	1,41484	100	1,41584	100	1,41684	101
0,89	1,42289	102	1,42391	101	1,42492	102	1,42594	101	1,42695	102
0,90	1,43309	102	1,43411	103	1,43514	103	1,43617	103	1,43720	104
0,91	1,44342	104	1,44446	105	1,44551	104	1,44655	105	1,44760	105
0,92	1,45390	106	1,45496	106	1,45602	106	1,45708	106	1,45814	106
0,93	1,46453	107	1,46560	107	1,46667	108	1,46775	107	1,46882	108
0,94	1,47530	109	1,47639	109	1,47748	109	1,47857	109	1,47966	109
0,95	1,48623	110	1,48733	110	1,48843	110	1,48953	111	1,49064	110
0,96	1,49729	112	1,49841	112	1,49953	111	1,50064	112	1,50176	113
0,97	1,50851	113	1,50964	114	1,51078	113	1,51191	113	1,51304	114
0,98	1,51988	115	1,52103	115	1,52218	114	1,52332	115	1,52447	116
0,99	1,53141	116	1,53257	116	1,53373	116	1,53489	117	1,53606	116

Błąd przybliżeń podanych na str. 250 i 251 jest nie większy niż 0,000005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,00000520 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
1,13025	052	1,13077	053	1,13130	053	1,13183	053	1,13236	053	0,50
1,13557	054	1,13611	054	1,13665	054	1,13719	054	1,13773	054	0,51
1,14101	055	1,14156	055	1,14211	055	1,14266	055	1,14321	056	0,52
1,14656	056	1,14712	056	1,14768	057	1,14825	056	1,14881	057	0,53
1,15223	057	1,15280	057	1,15337	058	1,15395	057	1,15452	058	0,54
1,15801	058	1,15859	059	1,15918	058	1,15976	059	1,16035	059	0,55
1,16390	060	1,16450	060	1,16510	060	1,16570	060	1,16630	060	0,56
1,16992	061	1,17053	060	1,17113	061	1,17174	062	1,17236	061	0,57
1,17605	062	1,17667	062	1,17729	062	1,17791	062	1,17853	063	0,58
1,18230	063	1,18293	063	1,18356	063	1,18419	064	1,18483	064	0,59
1,18866	065	1,18931	064	1,18995	065	1,19060	064	1,19124	065	0,60
1,19515	065	1,19580	066	1,19646	066	1,19712	066	1,19778	066	0,61
1,20175	067	1,20242	067	1,20309	067	1,20376	067	1,20443	067	0,62
1,20848	068	1,20916	068	1,20984	068	1,21052	068	1,21120	069	0,63
1,21532	070	1,21602	069	1,21671	069	1,21740	070	1,21810	069	0,64
1,22229	071	1,22300	070	1,22370	071	1,22441	070	1,22511	071	0,65
1,22938	072	1,23010	071	1,23081	072	1,23153	072	1,23225	072	0,66
1,23659	073	1,23732	073	1,23805	073	1,23878	073	1,23951	074	0,67
1,24393	074	1,24467	074	1,24541	075	1,24616	074	1,24690	075	0,68
1,25139	075	1,25214	076	1,25290	075	1,25365	076	1,25441	069	0,69
1,25898	076	1,25974	077	1,26051	077	1,26128	077	1,26205	077	0,70
1,26669	078	1,26747	078	1,26825	078	1,26903	078	1,26981	078	0,71
1,27453	079	1,27532	079	1,27611	079	1,27690	080	1,27770	079	0,72
1,28249	081	1,28330	080	1,28410	081	1,28491	081	1,28572	080	0,73
1,29059	081	1,29140	082	1,29222	082	1,29304	082	1,29386	082	0,74
1,29881	083	1,29964	083	1,30047	083	1,30130	084	1,30214	083	0,75
1,30716	085	1,30801	084	1,30885	085	1,30970	084	1,31054	085	0,76
1,31565	085	1,31650	086	1,31736	086	1,31822	086	1,31908	086	0,77
1,32426	087	1,32513	087	1,32600	087	1,32687	088	1,32775	087	0,78
1,33301	088	1,33389	089	1,33478	088	1,33566	089	1,33655	088	0,79
1,34189	090	1,34279	089	1,34368	090	1,34458	090	1,34548	090	0,80
1,35091	091	1,35182	091	1,35273	091	1,35364	091	1,35455	092	0,81
1,36006	092	1,36098	092	1,36190	093	1,36283	093	1,36376	092	0,82
1,36934	094	1,37028	094	1,37122	094	1,37216	094	1,37310	094	0,83
1,37877	095	1,37972	095	1,38067	095	1,38162	096	1,38258	095	0,84
1,38833	096	1,38929	097	1,39026	096	1,39122	097	1,39219	097	0,85
1,39803	098	1,39901	098	1,39999	098	1,40097	098	1,40195	098	0,86
1,40787	099	1,40886	099	1,40985	100	1,41085	099	1,41184	100	0,87
1,41785	101	1,41886	100	1,41986	101	1,42087	101	1,42188	101	0,88
1,42797	102	1,42899	102	1,43001	103	1,43104	102	1,43206	103	0,89
1,43824	103	1,43927	104	1,44031	103	1,44134	104	1,44238	104	0,90
1,44865	104	1,44969	106	1,45075	105	1,45180	105	1,45285	105	0,91
1,45920	106	1,46026	107	1,46133	106	1,46239	107	1,46346	107	0,92
1,46990	108	1,47098	108	1,47206	108	1,47314	108	1,47422	108	0,93
1,48075	109	1,48184	109	1,48293	110	1,48403	110	1,48513	110	0,94
1,49174	111	1,49285	111	1,49396	111	1,49507	111	1,49618	111	0,95
1,50289	112	1,50401	112	1,50513	113	1,50626	113	1,50739	112	0,96
1,51418	114	1,51532	114	1,51646	114	1,51760	114	1,51874	114	0,97
1,52563	115	1,52678	115	1,52793	116	1,52909	116	1,53025	116	0,98
1,53722	117	1,53839	117	1,53956	117	1,54073	118	1,54191	117	0,99

cosh x

The error of the approximations given on pp. 250 and 251 is not greater than 0,000005 and the error of an approximation obtained by linear interpolation is less than 0,00000520 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny (cosh x)

x	0	δ	1	δ	2	δ	3	δ	4	δ
1,00	1,54308	118	1,54426	117	1,54543	118	1,54661	118	1,54779	119
1,01	1,55491	119	1,55610	119	1,55729	120	1,55849	120	1,55969	119
1,02	1,56689	121	1,56810	121	1,56931	121	1,57052	121	1,57173	122
1,03	1,57904	122	1,58026	122	1,58148	123	1,58271	123	1,58394	123
1,04	1,59134	123	1,59257	124	1,59381	125	1,59506	124	1,59630	125
1,05	1,60379	126	1,60505	126	1,60631	125	1,60756	126	1,60882	126
1,06	1,61641	127	1,61768	128	1,61896	127	1,62023	128	1,62151	127
1,07	1,62919	129	1,63048	129	1,63177	129	1,63306	129	1,63435	130
1,08	1,64214	130	1,64344	131	1,64475	130	1,64605	131	1,64736	131
1,09	1,65525	132	1,65657	132	1,65789	132	1,65921	132	1,66053	133
1,10	1,66852	134	1,66986	133	1,67119	134	1,67253	134	1,67387	135
1,11	1,68196	135	1,68331	136	1,68467	135	1,68602	136	1,68738	136
1,12	1,69557	137	1,69694	137	1,69831	137	1,69968	138	1,70106	137
1,13	1,70934	139	1,71073	139	1,71212	139	1,71351	139	1,71490	140
1,14	1,72329	141	1,72470	140	1,72610	141	1,72751	141	1,72982	141
1,15	1,73741	143	1,73884	142	1,74026	142	1,74168	143	1,74311	143
1,16	1,75171	144	1,75315	144	1,75459	144	1,75603	145	1,75748	144
1,17	1,76618	146	1,76764	145	1,76909	147	1,77056	146	1,77202	146
1,18	1,78083	147	1,78230	148	1,78378	148	1,78526	147	1,78673	149
1,19	1,79565	149	1,79714	150	1,79864	149	1,80013	150	1,80163	150
1,20	1,81066	151	1,81217	151	1,81368	151	1,81519	152	1,81671	152
1,21	1,82584	153	1,82737	153	1,82890	153	1,83043	154	1,83197	153
1,22	1,84121	155	1,84276	154	1,84430	156	1,84586	155	1,84741	155
1,23	1,85676	157	1,85833	156	1,85989	157	1,86146	157	1,86303	158
1,24	1,87250	158	1,87408	159	1,87567	159	1,87726	159	1,87885	159
1,25	1,88842	161	1,89003	160	1,89163	161	1,89324	161	1,89485	161
1,26	1,90454	162	1,90616	162	1,90778	163	1,90941	163	1,91104	163
1,27	1,92084	164	1,92248	165	1,92413	164	1,92577	165	1,92742	165
1,28	1,93734	166	1,93900	166	1,94066	167	1,94233	166	1,94399	167
1,29	1,95403	168	1,95571	168	1,95739	168	1,95907	169	1,96076	169
1,30	1,97091	170	1,97261	170	1,97431	171	1,97602	170	1,97772	171
1,31	1,98800	172	1,98972	172	1,99144	172	1,99316	173	1,99489	172
1,32	2,00528	174	2,00702	174	2,00876	174	2,01050	175	2,01225	174
1,33	2,02276	176	2,02452	176	2,02628	176	2,02804	177	2,02981	177
1,34	2,04044	178	2,04222	179	2,04401	178	2,04579	179	2,04758	178
1,35	2,05833	180	2,06013	181	2,06194	180	2,06374	181	2,06555	180
1,36	2,07643	182	2,07825	182	2,08007	183	2,08190	182	2,08372	183
1,37	2,09473	184	2,09657	184	2,09841	185	2,10026	185	2,10211	185
1,38	2,11324	186	2,11510	187	2,11697	186	2,11883	187	2,12070	187
1,39	2,13196	189	2,13385	188	2,13573	189	2,13762	189	2,13951	189
1,40	2,15090	190	2,15280	191	2,15471	191	2,15662	191	2,15853	192
1,41	2,17005	193	2,17198	193	2,17391	193	2,17584	193	2,17777	194
1,42	2,18942	195	2,19137	195	2,19332	195	2,19527	196	2,19723	195
1,43	2,20900	197	2,21097	198	2,21295	197	2,21492	198	2,21690	198
1,44	2,22881	199	2,23080	200	2,23280	200	2,23480	200	2,23680	200
1,45	2,24884	202	2,25086	202	2,25288	202	2,25490	202	2,25692	202
1,46	2,26910	204	2,27114	204	2,27318	204	2,27522	204	2,27726	205
1,47	2,28958	206	2,29164	206	2,29370	207	2,29577	207	2,29784	207
1,48	2,31029	209	2,31238	208	2,31446	209	2,31655	209	2,31864	209
1,49	2,33123	211	2,33334	211	2,33545	211	2,33756	212	2,33968	211

Błąd przybliżeń podanych na str. 252 i 253 jest nie większy niż 0,000005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,00000530 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
1,54898	118	1,55016	118	1,55134	119	1,55253	119	1,55372	119	1,00
1,56088	120	1,56208	120	1,56328	121	1,56449	120	1,56569	120	1,01
1,57295	121	1,57416	122	1,57538	122	1,57660	122	1,57782	122	1,02
1,58517	123	1,58640	123	1,58763	123	1,58886	124	1,59010	124	1,03
1,59755	124	1,59879	125	1,60004	125	1,60129	125	1,60254	125	1,04
1,61008	127	1,61135	126	1,61261	127	1,61388	126	1,61514	127	1,05
1,62278	128	1,62406	128	1,62534	128	1,62662	129	1,62791	128	1,06
1,63565	129	1,63694	130	1,63824	130	1,63954	130	1,64084	130	1,07
1,64867	131	1,64998	132	1,65130	131	1,65261	132	1,65393	132	1,08
1,66186	133	1,66319	133	1,66452	133	1,66585	133	1,66718	134	1,09
1,67522	134	1,67656	135	1,67791	135	1,67926	135	1,68061	135	1,10
1,68874	136	1,69010	137	1,69147	136	1,69283	137	1,69420	137	1,11
1,70243	138	1,70381	138	1,70519	139	1,70658	138	1,70796	138	1,12
1,71630	139	1,71769	140	1,71909	140	1,72049	140	1,72189	140	1,13
1,73033	142	1,73175	141	1,73316	142	1,73458	141	1,73599	142	1,14
1,74454	143	1,74597	143	1,74740	144	1,74884	143	1,75027	144	1,15
1,75892	145	1,76037	145	1,76182	145	1,76327	145	1,76472	146	1,16
1,77348	147	1,77495	146	1,77641	147	1,77788	147	1,77935	148	1,17
1,78822	148	1,78970	149	1,79119	148	1,79267	149	1,79416	149	1,18
1,80313	150	1,80463	151	1,80614	150	1,80764	151	1,80915	151	1,19
1,81823	151	1,81974	153	1,82127	152	1,82279	152	1,82431	153	1,20
1,83350	154	1,83504	154	1,83658	154	1,83812	154	1,83966	155	1,21
1,84896	156	1,85052	156	1,85208	156	1,85364	156	1,85520	156	1,22
1,86461	157	1,86618	158	1,86776	158	1,86934	158	1,87092	158	1,23
1,88044	159	1,88203	160	1,88363	159	1,88522	160	1,88682	160	1,24
1,89646	161	1,89807	161	1,89968	162	1,90130	162	1,90292	162	1,25
1,91267	163	1,91430	163	1,91593	164	1,91757	163	1,91920	164	1,26
1,92907	165	1,93072	165	1,93237	165	1,93402	166	1,93568	166	1,27
1,94566	167	1,94733	167	1,94900	168	1,95068	167	1,95235	168	1,28
1,96245	169	1,96414	169	1,96583	169	1,96752	170	1,96922	169	1,29
1,97943	171	1,98114	171	1,98285	171	1,98456	172	1,98628	172	1,30
1,99661	173	1,99834	173	2,00007	174	2,00181	173	2,00354	174	1,31
2,01399	175	2,01574	175	2,01749	176	2,01925	175	2,02100	176	1,32
2,03158	177	2,03335	177	2,03512	177	2,03689	178	2,03867	177	1,33
2,04936	179	2,05115	179	2,05294	180	2,05474	179	2,05653	180	1,34
2,06735	181	2,06916	182	2,07098	181	2,07279	182	2,07461	182	1,35
2,08555	183	2,08738	184	2,08922	183	2,09105	184	2,09289	184	1,36
2,10396	185	2,10581	185	2,10766	186	2,10952	186	2,11138	186	1,37
2,12257	188	2,12445	187	2,12632	188	2,12820	188	2,13008	188	1,38
2,14140	190	2,14330	190	2,14520	189	2,14709	191	2,14900	190	1,39
2,16045	191	2,16236	192	2,16428	192	2,16620	192	2,16812	193	1,40
2,17971	193	2,18164	194	2,18358	195	2,18553	194	2,18747	195	1,41
2,19918	196	2,20114	196	2,20310	197	2,20507	197	2,20704	196	1,42
2,21888	198	2,22086	199	2,22285	198	2,22483	199	2,22682	199	1,43
2,23880	200	2,24080	201	2,24281	201	2,24482	201	2,24683	201	1,44
2,25894	203	2,26097	203	2,26300	203	2,26503	203	2,26706	204	1,45
2,27931	205	2,28136	205	2,28341	206	2,28547	205	2,28752	206	1,46
2,29991	207	2,30198	207	2,30405	208	2,30613	208	2,30821	208	1,47
2,32073	210	2,32283	210	2,32493	210	2,32703	210	2,32913	210	1,48
2,34179	212	2,34391	212	2,34603	213	2,34816	212	2,35028	213	1,49

cosh x

The error of the approximations given on pp. 252 and 253 is not greater than 0,000005 and the error of an approximation obtained by linear interpolation is less than 0,00000530 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
1,50	2,35241	213	2,35454	213	2,35667	214	2,35881	214	2,36095	214
1,51	2,37382	215	2,37597	216	2,37813	216	2,38029	216	2,38245	216
1,52	2,39547	218	2,39765	218	2,39983	218	2,40201	218	2,40419	219
1,53	2,41736	220	2,41956	220	2,42176	221	2,42397	221	2,42618	221
1,54	2,43949	222	2,44171	223	2,44394	223	2,44617	224	2,44841	223
1,55	2,46186	225	2,46411	225	2,46636	226	2,46862	226	2,47088	226
1,56	2,48448	227	2,48675	228	2,48903	228	2,49131	229	2,49360	228
1,57	2,50735	230	2,50965	230	2,51195	231	2,51426	230	2,51656	231
1,58	2,53047	232	2,53279	233	2,53512	233	2,53745	233	2,53978	234
1,59	2,55384	235	2,55619	235	2,55854	236	2,56090	236	2,56326	236
1,60	2,57746	238	2,57984	238	2,58222	238	2,58460	239	2,58699	238
1,61	2,60135	240	2,60375	241	2,60616	241	2,60857	241	2,61098	241
1,62	2,62549	243	2,62792	243	2,63035	244	2,63279	244	2,63523	244
1,63	2,64990	246	2,65236	246	2,65482	246	2,65728	246	2,65974	247
1,64	2,67457	249	2,67706	248	2,67954	249	2,68203	249	2,68452	249
1,65	2,69951	251	2,70202	252	2,70454	251	2,70705	252	2,70957	252
1,66	2,72472	254	2,72726	254	2,72980	254	2,73234	255	2,73489	254
1,67	2,75021	256	2,75277	257	2,75534	257	2,75791	257	2,76048	257
1,68	2,77596	260	2,77856	259	2,78115	260	2,78375	260	2,78635	260
1,69	2,80200	262	2,80462	262	2,80724	263	2,80987	262	2,81249	263
1,70	2,82832	264	2,83096	265	2,83361	266	2,83627	265	2,83892	266
1,71	2,85491	268	2,85759	268	2,86027	268	2,86295	268	2,86563	269
1,72	2,88180	270	2,88450	271	2,88721	271	2,88992	271	2,89263	272
1,73	2,90897	273	2,91170	274	2,91444	274	2,91718	274	2,91992	274
1,74	2,93643	276	2,93919	277	2,94196	277	2,94473	277	2,94750	277
1,75	2,96419	279	2,96698	280	2,96978	279	2,97257	280	2,97537	281
1,76	2,99224	282	2,99506	283	2,99789	283	3,00072	283	3,00355	283
1,77	3,02059	285	3,02344	286	3,02630	286	3,02916	286	3,03202	286
1,78	3,04925	288	3,05213	288	3,05501	289	3,05790	289	3,06079	290
1,79	3,07821	291	3,08112	291	3,08403	292	3,08695	293	3,08988	292
1,80	3,10747	295	3,11042	294	3,11336	295	3,11631	296	3,11927	295
1,81	3,13705	298	3,14003	297	3,14300	299	3,14599	298	3,14897	299
1,82	3,16694	301	3,16995	301	3,17296	301	3,17597	302	3,17899	302
1,83	3,19715	304	3,20019	304	3,20323	304	3,20627	305	3,20932	305
1,84	3,22768	307	3,23075	307	3,23382	308	3,23690	308	3,23998	308
1,85	3,25853	310	3,26163	311	3,26474	311	3,26785	311	3,27096	312
1,86	3,28970	314	3,29284	314	3,29598	314	3,29912	315	3,30227	315
1,87	3,32121	317	3,32438	317	3,32755	318	3,33073	317	3,33390	319
1,88	3,35305	320	3,35625	321	3,35946	320	3,36266	322	3,36588	321
1,89	3,38522	324	3,38846	324	3,39170	324	3,39494	324	3,39818	325
1,90	3,41773	327	3,42100	327	3,42427	328	3,42755	328	3,43083	329
1,91	3,45058	331	3,45389	331	3,45720	331	3,46051	331	3,46382	332
1,92	3,48378	334	3,48712	334	3,49046	335	3,49381	335	3,49716	335
1,93	3,51733	337	3,52070	338	3,52408	338	3,52746	339	3,53085	338
1,94	3,55123	341	3,55464	341	3,55805	342	3,56147	342	3,56489	342
1,95	3,58548	345	3,58893	344	3,59237	346	3,59583	345	3,59928	346
1,96	3,62009	348	3,62357	349	3,62706	349	3,63055	349	3,63404	349
1,97	3,65507	351	3,65858	353	3,66211	352	3,66563	353	3,66916	353
1,98	3,69041	355	3,69396	356	3,69752	356	3,70108	357	3,70465	356
1,99	3,72611	360	3,72971	359	3,73330	360	3,73690	360	3,74050	361

Błąd przybliżeń podanych na str. 254 i 255 jest nie większy niż 0,000005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,00000548 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
2,36309	214	2,36523	214	2,36737	215	2,36952	215	2,37167	215	1,50
2,38461	217	2,38678	217	2,38895	217	2,39112	217	2,39329	218	1,51
2,40638	219	2,40857	219	2,41076	220	2,41296	220	2,41516	220	1,52
2,42839	221	2,43060	222	2,43282	222	2,43504	222	2,43726	223	1,53
2,45064	224	2,45288	224	2,45512	224	2,45736	225	2,45961	225	1,54
2,47314	226	2,47540	227	2,47767	226	2,47993	228	2,48221	227	1,55
2,49588	229	2,49817	229	2,50046	229	2,50275	230	2,50505	230	1,56
2,51887	232	2,52119	231	2,52350	232	2,52582	232	2,52814	233	1,57
2,54212	234	2,54446	234	2,54680	234	2,54914	235	2,55149	235	1,58
2,56562	236	2,56798	237	2,57035	237	2,57272	237	2,57509	237	1,59
2,58937	239	2,59176	240	2,59416	239	2,59655	240	2,59895	240	1,60
2,61339	242	2,61581	241	2,61822	242	2,62064	243	2,62307	242	1,61
2,63767	244	2,64011	244	2,64255	245	2,64500	245	2,64745	245	1,62
2,66221	246	2,66467	248	2,66715	247	2,66962	248	2,67210	247	1,63
2,68701	250	2,68951	249	2,69200	251	2,69451	250	2,69701	250	1,64
2,71209	252	2,71461	252	2,71713	253	2,71966	253	2,72219	253	1,65
2,73743	255	2,73998	255	2,74253	256	2,74509	256	2,74765	256	1,66
2,76305	258	2,76563	258	2,76821	258	2,77079	259	2,77338	258	1,67
2,78895	260	2,79155	261	2,79416	261	2,79677	261	2,79938	262	1,68
2,81512	264	2,81776	263	2,82039	264	2,82303	264	2,82567	265	1,69
2,84158	266	2,84424	266	2,84690	267	2,84957	267	2,85224	267	1,70
2,86832	269	2,87101	269	2,87370	270	2,87640	270	2,87910	270	1,71
2,89535	272	2,89807	272	2,90079	272	2,90351	273	2,90624	273	1,72
2,92266	275	2,92541	275	2,92816	276	2,93092	275	2,93367	276	1,73
2,95027	278	2,95305	278	2,95583	278	2,95861	279	2,96140	279	1,74
2,97818	280	2,98098	281	2,98379	282	2,98661	281	2,98942	282	1,75
3,00638	284	3,00922	284	3,01206	284	3,01490	284	3,01774	285	1,76
3,03488	287	3,03775	287	3,04062	287	3,04349	288	3,04637	288	1,77
3,06369	290	3,06659	290	3,06949	290	3,07239	291	3,07530	291	1,78
3,09280	293	3,09573	293	3,09866	294	3,10160	293	3,10453	294	1,79
3,12222	296	3,12518	296	3,12814	297	3,13111	297	3,13408	297	1,80
3,15196	299	3,15495	299	3,15794	300	3,16094	300	3,16394	300	1,81
3,18201	302	3,18503	302	3,18805	303	3,19108	303	3,19411	304	1,82
3,21237	306	3,21543	306	3,21849	306	3,22155	306	3,22461	307	1,83
3,24306	309	3,24615	309	3,24924	309	3,25233	310	3,25543	310	1,84
3,27408	311	3,27719	313	3,28032	312	3,28344	313	3,28657	313	1,85
3,30542	315	3,30857	315	3,31172	316	3,31488	316	3,31804	317	1,86
3,33709	318	3,34027	319	3,34346	319	3,34665	320	3,34985	320	1,87
3,36909	322	3,37231	322	3,37553	323	3,37876	323	3,38199	323	1,88
3,40143	326	3,40469	325	3,40794	326	3,41120	327	3,41447	326	1,89
3,43412	328	3,43740	329	3,44069	330	3,44399	329	3,44728	330	1,90
3,46714	332	3,47046	333	3,47379	333	3,47712	333	3,48045	333	1,91
3,50051	336	3,50387	336	3,50723	336	3,51059	337	3,51396	337	1,92
3,53423	340	3,53763	339	3,54102	340	3,54442	340	3,54782	341	1,93
3,56831	343	3,57174	343	3,57517	343	3,57860	344	3,58204	344	1,94
3,60274	346	3,60620	347	3,60967	347	3,61314	348	3,61662	347	1,95
3,63753	350	3,64103	351	3,64454	350	3,64804	351	3,65155	352	1,96
3,67269	354	3,67623	354	3,67977	354	3,68331	355	3,68686	355	1,97
3,70821	358	3,71179	357	3,71536	358	3,71894	359	3,72253	358	1,98
3,74411	361	3,74772	361	3,75133	362	3,75495	362	3,75857	363	1,99

cosh x

The error of the approximations given on pp. 254 and 255 is not greater than 0,000005 and the error of an approximation obtained by linear interpolation is less than 0,00000548 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
2,00	3,76220	362	3,76582	364	3,76946	363	3,77309	364	3,77673	365
2,01	3,79865	367	3,80232	367	3,80599	367	3,80966	368	3,81334	368
2,02	3,83549	370	3,83919	371	3,84290	372	3,84662	371	3,85033	372
2,03	3,87271	374	3,87645	375	3,88020	375	3,88395	376	3,88771	376
2,04	3,91032	378	3,91410	379	3,91789	379	3,92168	379	3,92547	380
2,05	3,94832	382	3,95214	383	3,95597	382	3,95979	384	3,96363	384
2,06	3,98671	386	3,99057	387	3,99444	387	3,99831	387	4,00218	388
2,07	4,02550	391	4,02941	390	4,03331	391	4,03722	391	4,04113	392
2,08	4,06470	394	4,06864	395	4,07259	395	4,07654	395	4,08049	396
2,09	4,10430	398	4,10828	399	4,11227	399	4,11626	400	4,12026	400
2,10	4,14431	403	4,14834	403	4,15237	403	4,15640	403	4,16043	404
2,11	4,18474	407	4,18881	407	4,19288	407	4,19695	408	4,20103	408
2,12	4,22558	411	4,22969	411	4,23380	412	4,23792	412	4,24204	413
2,13	4,26685	415	4,27100	416	4,27516	416	4,27932	416	4,28348	417
2,14	4,30855	419	4,31274	420	4,31694	420	4,32114	420	4,32534	421
2,15	4,35067	424	4,35491	424	4,35915	424	4,36339	425	4,36764	426
2,16	4,39323	428	4,39751	429	4,40180	428	4,40608	430	4,41038	430
2,17	4,43623	433	4,44056	432	4,44488	434	4,44922	433	4,45355	435
2,18	4,47967	437	4,48404	438	4,48842	437	4,49279	439	4,49718	438
2,19	4,52356	442	4,52798	442	4,53240	442	4,53682	443	4,54125	443
2,20	4,56791	446	4,57237	446	4,57683	447	4,58130	447	4,58577	448
2,21	4,61271	450	4,61721	451	4,62172	452	4,62624	452	4,63076	452
2,22	4,65797	455	4,66252	456	4,66708	456	4,67164	456	4,67620	458
2,23	4,70370	460	4,70830	460	4,71290	461	4,71751	461	4,72212	462
2,24	4,74989	465	4,75454	465	4,75919	466	4,76385	466	4,76851	466
2,25	4,79657	469	4,80126	470	4,80596	470	4,81066	471	4,81537	471
2,26	4,84372	474	4,84846	475	4,85321	475	4,85796	476	4,86272	476
2,27	4,89136	479	4,89615	479	4,90094	480	4,90574	481	4,91055	481
2,28	4,93948	484	4,94432	485	4,94917	485	4,95402	485	4,95887	486
2,29	4,98810	489	4,99299	490	4,99789	490	5,00279	490	5,00769	491
2,30	5,03722	494	5,04216	494	5,04710	495	5,05205	496	5,05701	496
2,31	5,08684	499	5,09183	500	5,09683	500	5,10183	500	5,10683	501
2,32	5,13697	505	5,14202	504	5,14706	505	5,15211	506	5,15717	506
2,33	5,18762	509	5,19271	510	5,19781	510	5,20291	511	5,20802	512
2,34	5,23878	515	5,24393	515	5,24908	515	5,25423	516	5,25939	517
2,35	5,29047	520	5,29567	520	5,30087	521	5,30608	521	5,31129	522
2,36	5,34269	525	5,34794	525	5,35319	526	5,35845	527	5,36372	527
2,37	5,39544	530	5,40074	531	5,40605	532	5,41137	532	5,41669	532
2,38	5,44873	536	5,45409	536	5,45945	537	5,46482	538	5,47020	538
2,39	5,50256	542	5,50798	541	5,51339	543	5,51882	543	5,52425	544
2,40	5,55695	547	5,56242	547	5,56789	548	5,57337	549	5,57886	549
2,41	5,61189	552	5,61741	553	5,62294	554	5,62848	554	5,63402	555
2,42	5,66739	558	5,67297	559	5,67856	559	5,68415	560	5,68975	560
2,43	5,72346	564	5,72910	564	5,73474	565	5,74039	566	5,74605	566
2,44	5,78010	570	5,78580	570	5,79150	571	5,79721	571	5,80292	572
2,45	5,83732	575	5,84307	576	5,84883	577	5,85460	577	5,86037	578
2,46	5,89512	582	5,90094	581	5,90675	583	5,91258	583	5,91841	584
2,47	5,95352	587	5,95939	588	5,96527	588	5,97115	589	5,97704	590
2,48	6,01250	594	6,01844	593	6,02437	595	6,03032	595	6,03627	595
2,49	6,07209	600	6,07809	599	6,08408	601	6,09009	601	6,09610	601

Błąd przybliżeń podanych na str. 256 i 257 jest nie większy niż 0,000005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,00000577 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
3,78038	364	3,78402	366	3,78768	365	3,79133	366	3,79499	366	2,00
3,81702	369	3,82071	369	3,82440	369	3,82809	370	3,83179	370	2,01
3,85405	373	3,85778	372	3,86150	374	3,86524	373	3,86897	374	2,02
3,89147	376	3,89523	377	3,89900	377	3,90277	377	3,90654	378	2,03
3,92927	380	3,93307	381	3,93688	381	3,94069	381	3,94450	382	2,04
3,96747	384	3,97131	384	3,97515	385	3,97900	385	3,98285	386	2,05
4,00606	388	4,00994	388	4,01382	389	4,01771	390	4,02161	389	2,06
4,04505	392	4,04897	393	4,05290	393	4,05683	393	4,06076	394	2,07
4,08445	396	4,08841	397	4,09238	397	4,09635	397	4,10032	398	2,08
4,12426	400	4,12826	401	4,13227	401	4,13628	401	4,14029	402	2,09
4,16447	405	4,16852	405	4,17257	405	4,17662	406	4,18068	406	2,10
4,20511	409	4,20920	409	4,21329	409	4,21738	410	4,22148	410	2,11
4,24617	412	4,25029	414	4,25443	413	4,25856	415	4,26271	414	2,12
4,28765	417	4,29182	417	4,29599	418	4,30017	419	4,30436	419	2,13
4,32955	422	4,33377	422	4,33799	422	4,34221	423	4,34644	423	2,14
4,37190	425	4,37615	427	4,38042	426	4,38468	428	4,38896	427	2,15
4,41468	430	4,41898	430	4,42328	432	4,42760	431	4,43191	432	2,16
4,45790	434	4,46224	435	4,46659	436	4,47095	436	4,47531	436	2,17
4,50156	439	4,50595	440	4,51035	440	4,51475	441	4,51916	440	2,18
4,54568	444	4,55012	444	4,55456	444	4,55900	445	4,56345	446	2,19
4,59025	448	4,59473	449	4,59922	449	4,60371	450	4,60821	450	2,20
4,63528	453	4,63981	453	4,64434	454	4,64888	454	4,65342	455	2,21
4,68078	457	4,68535	458	4,68993	458	4,69451	459	4,69910	460	2,22
4,72674	462	4,73136	463	4,73599	463	4,74062	463	4,74525	464	2,23
4,77317	467	4,77784	468	4,78252	467	4,78719	469	4,79188	469	2,24
4,82008	472	4,82480	472	4,82952	473	4,83425	473	4,83898	474	2,25
4,86748	476	4,87224	477	4,87701	478	4,88179	478	4,88657	479	2,26
4,91536	481	4,92017	482	4,92499	483	4,92982	483	4,93465	483	2,27
4,96373	486	4,96859	487	4,97346	488	4,97834	488	4,98322	488	2,28
5,01260	491	5,01751	492	5,02243	493	5,02736	493	5,03229	493	2,29
5,06197	496	5,06693	497	5,07190	498	5,07688	498	5,08186	498	2,30
5,11184	502	5,11686	502	5,12188	503	5,12691	503	5,13194	503	2,31
5,16223	507	5,16730	507	5,17237	508	5,17745	508	5,18253	509	2,32
5,21314	511	5,21825	513	5,22338	513	5,22851	513	5,23364	514	2,33
5,26456	517	5,26973	518	5,27491	518	5,28009	519	5,28528	519	2,34
5,31651	523	5,32174	523	5,32697	523	5,33220	524	5,33744	525	2,35
5,36899	528	5,37427	528	5,37955	529	5,38484	530	5,39014	530	2,36
5,42201	534	5,42735	533	5,43268	535	5,43803	534	5,44337	536	2,37
5,47558	538	5,48096	539	5,48635	540	5,49175	540	5,49715	541	2,38
5,52969	544	5,53513	544	5,54057	546	5,54603	545	5,55148	547	2,39
5,58435	549	5,58984	551	5,59535	551	5,60086	551	5,60637	552	2,40
5,63957	555	5,64512	556	5,65068	556	5,65624	557	5,66181	558	2,41
5,69535	561	5,70096	562	5,70658	562	5,71220	563	5,71783	563	2,42
5,75171	567	5,75738	567	5,76305	568	5,76873	568	5,77441	569	2,43
5,80864	572	5,81436	573	5,82009	574	5,82583	574	5,83157	575	2,44
5,86615	578	5,87193	579	5,87772	580	5,88352	580	5,88932	580	2,45
5,92425	584	5,93009	585	5,93594	585	5,94179	586	5,94765	587	2,46
5,98294	590	5,98884	590	5,99474	592	6,00066	592	6,00658	592	2,47
6,04222	596	6,04818	597	6,05415	598	6,06013	598	6,06611	598	2,48
6,10211	603	6,10814	603	6,11417	603	6,12020	604	6,12624	605	2,49

cosh x

The error of the approximations given on pp. 256 and 257 is not greater than 0,000005 and the error of an approximation obtained by linear interpolation is less than 0,00000577 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
2,50	6,13229	605	6,13834	606	6,14440	607	6,15047	607	6,15654	608
2,51	6,19310	611	6,19921	613	6,20534	612	6,21146	614	6,21760	614
2,52	6,25453	618	6,26071	618	6,26689	619	6,27308	619	6,27927	621
2,53	6,31658	624	6,32282	625	6,32907	625	6,33532	626	6,34158	627
2,54	6,37927	630	6,38557	631	6,39188	632	6,39820	632	6,40452	633
2,55	6,44259	637	6,44896	637	6,45533	639	6,46172	638	6,46810	640
2,56	6,50656	643	6,51299	644	6,51943	645	6,52588	645	6,53233	646
2,57	6,57118	650	6,57768	650	6,58418	651	6,59069	652	6,59721	653
2,58	6,63646	656	6,64302	657	6,64959	658	6,65617	658	6,66275	659
2,59	6,70240	663	6,70903	663	6,71566	665	6,72231	665	6,72896	666
2,60	6,76901	669	6,77570	671	6,78241	671	6,78912	672	6,79584	672
2,61	6,83629	677	6,84306	677	6,84983	678	6,85661	679	6,86340	679
2,62	6,90426	684	6,91110	684	6,91794	685	6,92479	685	6,93164	687
2,63	6,97292	691	6,97983	691	6,98674	692	6,99366	692	7,00058	694
2,64	7,04228	698	7,04926	698	7,05624	699	7,06323	699	7,07022	701
2,65	7,11234	705	7,11939	705	7,12644	706	7,13350	707	7,14057	707
2,66	7,18312	712	7,19024	712	7,19736	713	7,20449	714	7,21163	714
2,67	7,25461	719	7,26180	720	7,26900	720	7,27620	721	7,28341	722
2,68	7,32683	726	7,33409	727	7,34136	728	7,34864	728	7,35592	729
2,69	7,39978	733	7,40711	735	7,41446	735	7,42181	736	7,42917	736
2,70	7,47347	741	7,48088	742	7,48830	742	7,49572	743	7,50315	744
2,71	7,54791	748	7,55539	749	7,56288	750	7,57038	751	7,57789	752
2,72	7,62310	756	7,63066	757	7,63823	757	7,64580	759	7,65339	759
2,73	7,69905	764	7,70669	765	7,71434	765	7,72199	766	7,72965	767
2,74	7,77578	771	7,78349	773	7,79122	773	7,79895	773	7,80668	775
2,75	7,85328	779	7,86107	780	7,86887	781	7,87668	782	7,88450	782
2,76	7,93157	787	7,93944	788	7,94732	789	7,95521	789	7,96310	791
2,77	8,01065	795	8,01860	796	8,02656	797	8,03453	797	8,04250	799
2,78	8,09053	803	8,09856	804	8,10660	805	8,11465	806	8,12271	806
2,79	8,17122	811	8,17933	813	8,18746	813	8,19559	814	8,20373	814
2,80	8,25273	819	8,26092	821	8,26913	821	8,27734	822	8,28556	823
2,81	8,33506	828	8,34334	829	8,35163	829	8,35992	831	8,36823	831
2,82	8,41823	836	8,42659	837	8,43496	838	8,44334	839	8,45173	840
2,83	8,50224	844	8,51068	846	8,51914	846	8,52760	848	8,53608	848
2,84	8,58710	853	8,59563	854	8,60417	855	8,61272	856	8,62128	857
2,85	8,67281	862	8,68143	863	8,69006	864	8,69870	864	8,70734	866
2,86	8,75940	870	8,76810	872	8,77682	872	8,78554	874	8,79428	874
2,87	8,84686	879	8,85565	881	8,86446	881	8,87327	882	8,88209	883
2,88	8,93520	889	8,94409	889	8,95298	890	8,96188	891	8,97079	892
2,89	9,02444	898	9,03342	898	9,04240	899	9,05139	900	9,06039	901
2,90	9,11458	907	9,12365	907	9,13272	908	9,14180	910	9,15090	910
2,91	9,20564	915	9,21479	917	9,22396	917	9,23313	919	9,24232	919
2,92	9,29761	925	9,30686	926	9,31612	926	9,32538	928	9,33466	929
2,93	9,39051	935	9,39986	935	9,40921	936	9,41857	937	9,42794	938
2,94	9,48436	943	9,49379	945	9,50324	945	9,51269	947	9,52216	947
2,95	9,57915	953	9,58868	954	9,59822	955	9,60777	956	9,61733	957
2,96	9,67490	962	9,68452	964	9,69416	965	9,70381	966	9,71347	966
2,97	9,77161	973	9,78134	973	9,79107	975	9,80082	975	9,81057	977
2,98	9,86930	983	9,87913	983	9,88896	984	9,89880	986	9,90866	986
2,99	9,96798	993	9,97791	993	9,98784	994	9,99778	996		
2,99								10,0077		100

Błąd przybliżeń podanych na str. 258 i 259 jest dla $2,500 \leq x < 2,994$ nie większy niż 0,000005, a dla $2,994 \leq x < 3,000$ nie większy niż 0,00005. Błąd przybliżenia otrzymanego przez interpolację liniową jest dla $2,500 < x < 2,994$ mniejszy niż $0,00000626 + \text{błąd zaokrąglenia wyniku}$, a dla $2,994 < x < 3,000$ mniejszy niż $0,0000513 + \text{błąd zaokrąglenia wyniku}$.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
6,16262	608	6,16870	609	6,17479	610	6,18089	610	6,18699	611	2,50
6,22374	614	6,22988	615	6,23603	616	6,24219	617	6,24836	617	2,51
6,28548	621	6,29169	621	6,29790	622	6,30412	623	6,31035	623	2,52
6,34785	627	6,35412	628	6,36040	628	6,36668	629	6,37297	630	2,53
6,41085	634	6,41719	634	6,42353	635	6,42988	635	6,43623	636	2,54
6,47450	640	6,48090	640	6,48730	642	6,49372	642	6,50014	642	2,55
6,53879	646	6,54525	648	6,55173	647	6,55820	649	6,56469	649	2,56
6,60374	653	6,61027	653	6,61680	655	6,62335	655	6,62990	656	2,57
6,66934	660	6,67594	660	6,68254	661	6,68915	662	6,69577	663	2,58
6,73562	666	6,74228	667	6,74895	668	6,75563	668	6,76231	670	2,59
6,80256	674	6,80930	674	6,81604	674	6,82278	675	6,82953	676	2,60
6,87019	680	6,87699	681	6,88380	681	6,89061	683	6,89744	682	2,61
6,93851	687	6,94538	687	6,95225	689	6,95914	689	6,96603	689	2,62
7,00752	694	7,01446	694	7,02140	695	7,02835	697	7,03532	696	2,63
7,07723	700	7,08423	702	7,09125	703	7,09828	703	7,10531	703	2,64
7,14764	708	7,15472	709	7,16181	710	7,16891	710	7,17601	711	2,65
7,21877	716	7,22593	716	7,23309	716	7,24025	718	7,24743	718	2,66
7,29063	722	7,29785	724	7,30509	724	7,31233	724	7,31957	726	2,67
7,36321	730	7,37051	731	7,37782	731	7,38513	732	7,39245	733	2,68
7,43653	737	7,44390	738	7,45128	739	7,45867	740	7,46607	740	2,69
7,51059	745	7,51804	746	7,52550	746	7,53296	747	7,54043	748	2,70
7,58541	752	7,59293	753	7,60046	754	7,60800	755	7,61555	755	2,71
7,66098	760	7,66858	761	7,67619	761	7,68380	762	7,69142	763	2,72
7,73732	768	7,74500	768	7,75268	769	7,76037	770	7,76807	771	2,73
7,81443	776	7,82219	776	7,82995	777	7,83772	777	7,84549	779	2,74
7,89232	784	7,90016	784	7,90800	785	7,91585	785	7,92370	787	2,75
7,97101	791	7,97892	792	7,98684	793	7,99477	793	8,00270	795	2,76
8,05049	799	8,05848	800	8,06648	801	8,07449	802	8,08251	802	2,77
8,13077	808	8,13885	808	8,14693	809	8,15502	809	8,16311	811	2,78
8,21187	816	8,22003	816	8,22819	817	8,23636	818	8,24454	819	2,79
8,29379	824	8,30203	824	8,31027	826	8,31853	826	8,32679	827	2,80
8,37654	832	8,38486	833	8,39319	834	8,40153	834	8,40987	836	2,81
8,46013	840	8,46853	842	8,47695	842	8,48537	843	8,49380	844	2,82
8,54456	849	8,55305	850	8,56155	851	8,57006	851	8,57857	853	2,83
8,62985	857	8,63842	859	8,64701	859	8,65560	860	8,66420	861	2,84
8,71600	866	8,72466	867	8,73333	868	8,74201	869	8,75070	870	2,85
8,80302	875	8,81177	876	8,82053	877	8,82930	877	8,83807	879	2,86
8,89092	884	8,89976	885	8,90861	885	8,91746	887	8,92633	887	2,87
8,97971	893	8,98864	894	8,99758	894	9,00652	896	9,01548	896	2,88
9,06940	902	9,07842	903	9,08745	903	9,09648	905	9,10553	905	2,89
9,16000	911	9,16911	912	9,17823	912	9,18735	914	9,19649	915	2,90
9,25151	920	9,26071	921	9,26992	922	9,27914	923	9,28837	924	2,91
9,34395	929	9,35324	930	9,36254	932	9,37186	932	9,38118	933	2,92
9,43732	939	9,44671	939	9,45610	941	9,46551	942	9,47493	943	2,93
9,53163	949	9,54112	949	9,55061	950	9,56011	951	9,56962	953	2,94
9,62690	958	9,63648	959	9,64607	960	9,65567	961	9,66528	962	2,95
9,72313	968	9,73281	968	9,74249	970	9,75219	971	9,76190	971	2,96
9,82034	977	9,83011	978	9,83989	980	9,84969	980	9,85949	981	2,97
9,91852	987	9,92839	989	9,93828	989	9,94817	990	9,95807	991	2,98
10,0177	100	10,0277	100	10,0377	099	10,0476	100	10,0576	101	2,99

cosh x

The error of the approximations given on pp. 258 and 259 is for $2,500 \leq x < 2,994$ not greater than 0,000005 and for $2,994 \leq x < 3,000$ not greater than 0,00005. The error of an approximation obtained by linear interpolation is for $2,500 < x < 2,994$ less than $0,00000626 +$ the error of rounding of the result and for $2,994 < x < 3,000$ less than $0,0000513 +$ the error of rounding off the result.

An example of interpolation is given p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
3,00	10,0677	100	10,0777	100	10,0877	101	10,0978	100	10,1078	101
3,01	10,1683	102	10,1785	101	10,1886	101	10,1987	102	10,2089	102
3,02	10,2700	103	10,2803	102	10,2905	103	10,3008	102	10,3110	103
3,03	10,3728	103	10,3831	103	10,3934	104	10,4038	104	10,4142	103
3,04	10,4765	105	10,4870	104	10,4974	105	10,5079	104	10,5183	105
3,05	10,5814	105	10,5919	105	10,6024	106	10,6130	106	10,6236	106
3,06	10,6872	107	10,6979	106	10,7085	107	10,7192	107	10,7299	107
3,07	10,7942	107	10,8049	108	10,8157	108	10,8265	107	10,8372	108
3,08	10,9022	108	10,9130	109	10,9239	109	10,9348	109	10,9457	109
3,09	11,0113	110	11,0223	109	11,0332	110	11,0442	110	11,0552	111
3,10	11,1215	111	11,1326	111	11,1437	111	11,1548	111	11,1659	111
3,11	11,2328	112	11,2440	112	11,2552	112	11,2664	113	11,2777	112
3,12	11,3453	113	11,3566	113	11,3679	113	11,3792	114	11,3906	113
3,13	11,4588	115	11,4703	114	11,4817	114	11,4931	115	11,5046	115
3,14	11,5736	115	11,5851	116	11,5967	115	11,6082	116	11,6198	116
3,15	11,6895	116	11,7011	117	11,7128	117	11,7245	116	11,7361	117
3,16	11,8065	118	11,8183	118	11,8301	118	11,8419	118	11,8537	118
3,17	11,9247	119	11,9366	119	11,9485	119	11,9604	120	11,9724	119
3,18	12,0442	120	12,0562	120	12,0682	120	12,0802	121	12,0923	120
3,19	12,1648	121	12,1769	122	12,1891	121	12,2012	122	12,2134	122
3,20	12,2866	123	12,2989	123	12,3112	122	12,3234	123	12,3357	123
3,21	12,4097	124	12,4221	124	12,4345	124	12,4469	124	12,4593	124
3,22	12,5340	125	12,5465	126	12,5591	125	12,5716	125	12,5841	126
3,23	12,6596	126	12,6722	127	12,6849	126	12,6975	127	12,7102	127
3,24	12,7864	128	12,7992	128	12,8120	127	12,8247	128	12,8375	128
3,25	12,9146	128	12,9274	129	12,9403	129	12,9532	130	12,9662	129
3,26	13,0440	130	13,0570	130	13,0700	130	13,0830	131	13,0961	131
3,27	13,1747	131	13,1878	132	13,2010	131	13,2141	132	13,2273	132
3,28	13,3067	133	13,3200	133	13,3333	133	13,3466	133	13,3599	133
3,29	13,4401	134	13,4535	134	13,4669	134	13,4803	135	13,4938	134
3,30	13,5748	135	13,5883	136	13,6019	135	13,6154	136	13,6290	136
3,31	13,7108	137	13,7245	137	13,7382	137	13,7519	137	13,7656	138
3,32	13,8483	138	13,8621	138	13,8759	139	13,8898	138	13,9036	139
3,33	13,9871	139	14,0010	140	14,0150	140	14,0290	140	14,0430	140
3,34	14,1273	141	14,1414	141	14,1555	141	14,1696	142	14,1838	141
3,35	14,2689	142	14,2831	143	14,2974	143	14,3117	143	14,3260	143
3,36	14,4120	143	14,4263	144	14,4407	145	14,4552	144	14,4696	144
3,37	14,5565	145	14,5710	145	14,5855	146	14,6001	146	14,6147	146
3,38	14,7024	147	14,7171	147	14,7318	147	14,7465	147	14,7612	147
3,39	14,8498	149	14,8647	148	14,8795	148	14,8943	149	14,9092	149
3,40	14,9987	150	15,0137	150	15,0287	150	15,0437	150	15,0587	151
3,41	15,1491	152	15,1643	151	15,1794	152	15,1946	151	15,2097	152
3,42	15,3011	152	15,3163	153	15,3316	153	15,3469	154	15,3623	153
3,43	15,4545	154	15,4699	155	15,4854	155	15,5009	154	15,5163	155
3,44	15,6095	156	15,6251	156	15,6407	156	15,6563	156	15,6719	157
3,45	15,7661	157	15,7818	158	15,7976	157	15,8133	158	15,8291	158
3,46	15,9242	159	15,9401	159	15,9560	160	15,9720	159	15,9879	160
3,47	16,0839	161	16,1000	161	16,1161	161	16,1322	161	16,1483	161
3,48	16,2453	162	16,2615	162	16,2777	163	16,2940	163	16,3103	162
3,49	16,4082	164	16,4246	164	16,4410	164	16,4574	165	16,4739	164

Błąd przybliżeń podanych na str. 260 i 261 jest nie większy niż 0,00005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,0000521 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
10,1179	101	10,1280	100	10,1380	101	10,1481	101	10,1582	101	3,00
10,2191	101	10,2292	102	10,2394	102	10,2496	102	10,2598	102	3,01
10,3213	103	10,3316	102	10,3418	103	10,3521	104	10,3625	103	3,02
10,4245	104	10,4349	104	10,4453	104	10,4557	104	10,4661	104	3,03
10,5288	105	10,5393	105	10,5498	105	10,5603	105	10,5708	106	3,04
10,6342	105	10,6447	106	10,6553	107	10,6660	106	10,6766	106	3,05
10,7406	107	10,7513	107	10,7620	107	10,7727	107	10,7834	108	3,06
10,8480	108	10,8588	109	10,8697	108	10,8805	108	10,8913	109	3,07
10,9566	109	10,9675	109	10,9784	110	10,9894	109	11,0003	110	3,08
11,0663	110	11,0773	110	11,0883	111	11,0994	110	11,1104	111	3,09
11,1770	112	11,1882	111	11,1993	112	11,2105	111	11,2216	112	3,10
11,2889	113	11,3002	112	11,3114	113	11,3227	113	11,3340	113	3,11
11,4019	114	11,4133	114	11,4247	113	11,4360	114	11,4474	114	3,12
11,5161	114	11,5275	115	11,5390	115	11,5505	116	11,5621	115	3,13
11,6314	116	11,6430	116	11,6546	116	11,6662	116	11,6778	117	3,14
11,7478	117	11,7595	118	11,7713	117	11,7830	118	11,7948	117	3,15
11,8655	118	11,8773	118	11,8891	119	11,9010	119	11,9129	118	3,16
11,9843	120	11,9963	119	12,0082	120	12,0202	120	12,0322	120	3,17
12,1043	121	12,1164	121	12,1285	121	12,1406	121	12,1527	121	3,18
12,2256	122	12,2378	122	12,2500	122	12,2622	122	12,2744	122	3,19
12,3480	123	12,3603	124	12,3727	123	12,3850	124	12,3974	123	3,20
12,4717	125	12,4842	124	12,4966	125	12,5091	124	12,5215	125	3,21
12,5967	125	12,6092	126	12,6218	126	12,6344	126	12,6470	126	3,22
12,7229	127	12,7356	127	12,7483	127	12,7610	127	12,7737	127	3,23
12,8503	129	12,8632	128	12,8760	128	12,8888	129	12,9017	129	3,24
12,9791	129	12,9920	130	13,0050	130	13,0180	130	13,0310	130	3,25
13,1092	130	13,1222	131	13,1353	131	13,1484	131	13,1615	132	3,26
13,2405	132	13,2537	133	13,2670	132	13,2802	132	13,2934	133	3,27
13,3732	134	13,3866	133	13,3999	134	13,4133	134	13,4267	134	3,28
13,5072	135	13,5207	135	13,5342	135	13,5477	135	13,5612	136	3,29
13,6426	136	13,6562	137	13,6699	136	13,6835	137	13,6972	136	3,30
13,7794	137	13,7931	138	13,8069	138	13,8207	137	13,8344	139	3,31
13,9175	139	13,9314	139	13,9453	139	13,9592	139	13,9731	140	3,32
14,0570	140	14,0710	141	14,0851	140	14,0991	141	14,1132	141	3,33
14,1979	142	14,2121	142	14,2263	142	14,2405	142	14,2547	142	3,34
14,3403	143	14,3546	143	14,3689	143	14,3832	144	14,3976	144	3,35
14,4840	145	14,4985	145	14,5130	144	14,5274	145	14,5419	146	3,36
14,6293	146	14,6439	146	14,6585	146	14,6731	146	14,6877	147	3,37
14,7759	148	14,7907	147	14,8054	148	14,8202	148	14,8350	148	3,38
14,9241	149	14,9390	149	14,9539	149	14,9688	150	14,9838	149	3,39
15,0738	150	15,0888	151	15,1039	150	15,1189	151	15,1340	151	3,40
15,2249	152	15,2401	152	15,2553	153	15,2706	152	15,2858	153	3,41
15,3776	153	15,3929	154	15,4083	154	15,4237	154	15,4391	154	3,42
15,5318	155	15,5473	155	15,5628	156	15,5784	155	15,5939	156	3,43
15,6876	157	15,7033	156	15,7189	157	15,7346	157	15,7503	158	3,44
15,8449	159	15,8608	158	15,8766	158	15,8924	159	15,9083	159	3,45
16,0039	159	16,0198	160	16,0358	161	16,0519	160	16,0679	160	3,46
16,1644	161	16,1805	162	16,1967	162	16,2129	162	16,2291	162	3,47
16,3265	163	16,3428	164	16,3592	163	16,3755	164	16,3919	163	3,48
16,4903	165	16,5068	165	16,5233	165	16,5398	165	16,5563	165	3,49

cosh x

The error of the approximations given on pp. 260 and 261 is not greater than 0,00005 and the error of an approximation obtained by linear interpolation is less than 0,0000521 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
3,50	16,5728	166	16,5894	165	16,6059	166	16,6225	166	16,6391	166
3,51	16,7391	167	16,7558	167	16,7725	168	16,7893	168	16,8061	167
3,52	16,9070	169	16,9239	169	16,9408	169	16,9577	170	16,9747	169
3,53	17,0766	171	17,0937	171	17,1108	171	17,1279	171	17,1450	171
3,54	17,2480	172	17,2652	172	17,2824	173	17,2997	173	17,3170	173
3,55	17,4210	174	17,4384	174	17,4558	175	17,4733	174	17,4907	175
3,56	17,5958	176	17,6134	176	17,6310	176	17,6486	176	17,6662	177
3,57	17,7724	177	17,7901	178	17,8079	178	17,8257	178	17,8435	178
3,58	17,9507	179	17,9686	180	17,9866	180	18,0046	179	18,0225	180
3,59	18,1308	181	18,1489	182	18,1671	181	18,1852	182	18,2034	182
3,60	18,3128	183	18,3311	183	18,3494	183	18,3677	184	18,3861	183
3,61	18,4966	184	18,5150	185	18,5335	185	18,5520	186	18,5706	185
3,62	18,6822	186	18,7008	187	18,7195	187	18,7382	187	18,7569	188
3,63	18,8697	188	18,8885	189	18,9074	189	18,9263	189	18,9452	189
3,64	19,0590	191	19,0781	190	19,0971	191	19,1162	191	19,1353	191
3,65	19,2503	193	19,2696	192	19,2888	193	19,3081	193	19,3274	193
3,66	19,4435	195	19,4630	194	19,4824	195	19,5019	195	19,5214	195
3,67	19,6387	196	19,6583	197	19,6780	196	19,6976	197	19,7173	197
3,68	19,8358	198	19,8556	199	19,8755	198	19,8953	199	19,9152	199
3,69	20,0349	200	20,0549	201	20,0750	200	20,0950	201	20,1151	201
3,70	20,2360	202	20,2562	203	20,2765	202	20,2967	203	20,3170	203
3,71	20,4391	205	20,4596	204	20,4800	205	20,5005	205	20,5210	205
3,72	20,6443	206	20,6649	207	20,6856	207	20,7063	207	20,7270	207
3,73	20,8516	208	20,8724	208	20,8932	209	20,9141	209	20,9350	209
3,74	21,0609	210	21,0819	211	21,1030	211	21,1241	211	21,1452	211
3,75	21,2723	213	21,2936	212	21,3148	213	21,3361	214	21,3575	213
3,76	21,4859	214	21,5073	215	21,5288	215	21,5503	216	21,5719	215
3,77	21,7016	216	21,7232	218	21,7450	217	21,7667	217	21,7884	218
3,78	21,9194	219	21,9413	220	21,9633	219	21,9852	220	22,0072	220
3,79	22,1395	221	22,1616	222	22,1838	221	22,2059	222	22,2281	223
3,80	22,3618	223	22,3841	224	22,4065	224	22,4289	224	22,4513	225
3,81	22,5863	226	22,6089	226	22,6315	226	22,6541	226	22,6767	227
3,82	22,8131	228	22,8359	228	22,8587	228	22,8815	229	22,9044	229
3,83	23,0421	231	23,0652	230	23,0882	231	23,1113	231	23,1344	231
3,84	23,2735	232	23,2967	233	23,3200	233	23,3433	234	23,3667	233
3,85	23,5072	235	23,5307	235	23,5542	235	23,5777	236	23,6013	236
3,86	23,7432	237	23,7669	238	23,7907	238	23,8145	238	23,8383	238
3,87	23,9816	240	24,0056	240	24,0296	240	24,0536	241	24,0777	240
3,88	24,2224	242	24,2466	243	24,2709	242	24,2951	243	24,3194	243
3,89	24,4657	244	24,4901	245	24,5146	245	24,5391	245	24,5636	246
3,90	24,7113	247	24,7360	248	24,7608	247	24,7855	248	24,8103	248
3,91	24,9595	249	24,9844	250	25,0094	250	25,0344	251	25,0595	250
3,92	25,2101	252	25,2353	253	25,2606	252	25,2858	253	25,3111	253
3,93	25,4633	255	25,4888	254	25,5142	256	25,5398	255	25,5653	255
3,94	25,7190	257	25,7447	258	25,7705	257	25,7962	258	25,8220	258
3,95	25,9773	260	26,0033	260	26,0293	260	26,0553	261	26,0814	260
3,96	26,2382	262	26,2644	263	26,2907	263	26,3170	263	26,3433	263
3,97	26,5017	265	26,5282	265	26,5547	266	26,5813	265	26,6078	266
3,98	26,7679	267	26,7946	268	26,8214	268	26,8482	269	26,8751	268
3,99	27,0367	270	27,0637	271	27,0908	271	27,1179	271	27,1450	271

Błąd przybliżeń podanych na str. 262 i 263 jest nie większy niż 0,00005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,0000535 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5.	δ	6	δ	7	δ	8	δ	9	δ	x
16,6557	167	16,6724	166	16,6890	167	16,7057	167	16,7224	167	3,50
16,8228	168	16,8396	169	16,8565	168	16,8733	168	16,8901	169	3,51
16,9916	170	17,0086	170	17,0256	170	17,0426	170	17,0596	170	3,52
17,1621	171	17,1792	172	17,1964	172	17,2136	172	17,2308	172	3,53
17,3343	173	17,3516	173	17,3689	174	17,3863	173	17,4036	174	3,54
17,5082	175	17,5257	175	17,5432	175	17,5607	176	17,5783	175	3,55
17,6839	176	17,7015	177	17,7192	177	17,7369	177	17,7546	178	3,56
17,8613	179	17,8792	178	17,8970	179	17,9149	179	17,9328	179	3,57
18,0405	181	18,0586	180	18,0766	181	18,0947	180	18,1127	181	3,58
18,2216	182	18,2398	182	18,2580	182	18,2762	183	18,2945	183	3,59
18,4044	184	18,4228	184	18,4412	185	18,4597	184	18,4781	185	3,60
18,5891	186	18,6077	186	18,6263	186	18,6449	186	18,6635	187	3,61
18,7757	187	18,7944	188	18,8132	188	18,8320	188	18,8508	189	3,62
18,9641	190	18,9831	189	19,0020	190	19,0210	190	19,0400	190	3,63
19,1544	192	19,1736	191	19,1927	192	19,2119	192	19,2311	192	3,64
19,3467	193	19,3660	194	19,3854	193	19,4047	194	19,4241	194	3,65
19,5409	195	19,5604	195	19,5799	196	19,5995	196	19,6191	196	3,66
19,7370	197	19,7567	198	19,7765	197	19,7962	198	19,8160	198	3,67
19,9351	199	19,9550	200	19,9750	199	19,9949	200	20,0149	200	3,68
20,1352	201	20,1553	202	20,1755	201	20,1956	202	20,2158	202	3,69
20,3373	203	20,3576	204	20,3780	204	20,3984	203	20,4187	204	3,70
20,5415	205	20,5620	205	20,5825	206	20,6031	206	20,6237	206	3,71
20,7477	207	20,7684	208	20,7892	207	20,8099	208	20,8307	209	3,72
20,9559	210	20,9769	210	20,9979	209	21,0188	210	21,0398	211	3,73
21,1663	212	21,1875	211	21,2086	212	21,2298	213	21,2511	212	3,74
21,3788	214	21,4002	214	21,4216	214	21,4430	214	21,4644	215	3,75
21,5934	216	21,6150	216	21,6366	216	21,6582	217	21,6799	217	3,76
21,8102	218	21,8320	218	21,8538	219	21,8757	218	21,8975	219	3,77
22,0292	220	22,0512	220	22,0732	221	22,0953	221	22,1174	221	3,78
22,2504	222	22,2726	223	22,2949	222	22,3171	223	22,3394	224	3,79
22,4738	224	22,4962	225	22,5187	225	22,5412	225	22,5637	226	3,80
22,6994	227	22,7221	227	22,7448	227	22,7675	228	22,7903	228	3,81
22,9273	229	22,9502	230	22,9732	229	22,9961	230	23,0191	230	3,82
23,1575	232	23,1807	231	23,2038	232	23,2270	232	23,2502	233	3,83
23,3900	234	23,4134	234	23,4368	234	23,4602	235	23,4837	235	3,84
23,6249	236	23,6485	236	23,6721	237	23,6958	237	23,7195	237	3,85
23,8621	239	23,8860	238	23,9098	239	23,9337	240	23,9577	239	3,86
24,1017	241	24,1258	241	24,1499	242	24,1741	241	24,1982	242	3,87
24,3437	244	24,3681	243	24,3924	244	24,4168	244	24,4412	245	3,88
24,5882	246	24,6128	246	24,6374	246	24,6620	247	24,6867	246	3,89
24,8351	248	24,8599	249	24,8848	249	24,9097	249	24,9346	249	3,90
25,0845	251	25,1096	251	25,1347	251	25,1598	252	25,1850	251	3,91
25,3364	253	25,3617	254	25,3871	254	25,4125	254	25,4379	254	3,92
25,5908	256	25,6164	256	25,6420	257	25,6677	256	25,6933	257	3,93
25,8478	259	25,8737	259	25,8996	258	25,9254	260	25,9514	259	3,94
26,1074	261	26,1335	262	26,1597	261	26,1858	262	26,2120	262	3,95
26,3696	264	26,3960	264	26,4224	264	26,4488	264	26,4752	265	3,96
26,6344	267	26,6611	266	26,6877	267	26,7144	267	26,7411	268	3,97
26,9019	269	26,9288	270	26,9558	269	26,9827	270	27,0097	270	3,98
27,1721	272	27,1993	272	27,2265	272	27,2537	273	27,2810	272	3,99

cosh x

The error of the approximations given on pp. 262 and 263 is not greater than 0,00005 and the error of an approximation obtained by linear interpolation is less than 0,0000535 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
4,00	27,3082	273	27,3355	274	27,3629	273	27,3902	274	27,4176	274
4,01	27,5825	276	27,6101	276	27,6377	276	27,6653	277	27,6930	277
4,02	27,8595	279	27,8874	279	27,9153	279	27,9432	279	27,9711	280
4,03	28,1393	282	28,1675	281	28,1956	282	28,2238	283	28,2521	282
4,04	28,4220	284	28,4504	284	28,4788	285	28,5073	285	28,5358	285
4,05	28,7074	287	28,7361	288	28,7649	287	28,7936	288	28,8224	288
4,06	28,9958	290	29,0248	290	29,0538	290	29,0828	291	29,1119	291
4,07	29,2870	293	29,3163	293	29,3456	294	29,3750	293	29,4043	294
4,08	29,5812	296	29,6108	296	29,6404	296	29,6700	297	29,6997	297
4,09	29,8783	299	29,9082	299	29,9381	299	29,9680	300	29,9980	300
4,10	30,1784	302	30,2086	302	30,2388	303	30,2691	302	30,2993	303
4,11	30,4816	304	30,5120	306	30,5426	305	30,5731	306	30,6037	306
4,12	30,7877	308	30,8185	308	30,8493	309	30,8802	309	30,9111	309
4,13	31,0970	311	31,1281	311	31,1592	312	31,1904	312	31,2216	312
4,14	31,4094	314	31,4408	314	31,4722	315	31,5037	315	31,5352	315
4,15	31,7249	317	31,7566	318	31,7884	318	31,8202	318	31,8520	318
4,16	32,0436	320	32,0756	321	32,1077	321	32,1398	321	32,1719	322
4,17	32,3655	323	32,3978	324	32,4302	324	32,4626	325	32,4951	325
4,18	32,6906	327	32,7233	327	32,7560	327	32,7887	328	32,8215	329
4,19	33,0190	330	33,0520	330	33,0850	331	33,1181	331	33,1512	332
4,20	33,3507	333	33,3840	334	33,4174	334	33,4508	335	33,4843	335
4,21	33,6857	337	33,7194	337	33,7531	338	33,7869	337	33,8206	339
4,22	34,0241	340	34,0581	341	34,0922	341	34,1263	341	34,1604	342
4,23	34,3659	344	34,4003	344	34,4347	344	34,4691	345	34,5036	345
4,24	34,7111	347	34,7458	348	34,7806	348	34,8154	348	34,8502	348
4,25	35,0598	351	35,0949	351	35,1300	351	35,1651	352	35,2003	352
4,26	35,4121	354	35,4475	354	35,4829	355	35,5184	355	35,5539	356
4,27	35,7678	358	35,8036	358	35,8394	358	35,8752	359	35,9111	359
4,28	36,1271	362	36,1633	361	36,1994	362	36,2356	363	36,2719	363
4,29	36,4901	365	36,5266	365	36,5631	366	36,5997	366	36,6363	366
4,30	36,8567	368	36,8935	369	36,9304	370	36,9674	369	37,0043	371
4,31	37,2270	372	37,2642	373	37,3015	373	37,3388	373	37,3761	374
4,32	37,6010	376	37,6386	376	37,6762	377	37,7139	377	37,7516	378
4,33	37,9787	380	38,0167	380	38,0547	381	38,0928	381	38,1309	381
4,34	38,3603	384	38,3987	384	38,4371	384	38,4755	385	38,5140	385
4,35	38,7457	387	38,7844	388	38,8232	389	38,8621	388	38,9009	389
4,36	39,1350	391	39,1741	392	39,2133	392	39,2525	393	39,2918	393
4,37	39,5281	396	39,5677	396	39,6073	396	39,6469	396	39,6865	397
4,38	39,9253	399	39,9652	400	40,0052	400	40,0452	401	40,0853	400
4,39	40,3264	403	40,3667	404	40,4071	404	40,4475	405	40,4880	405
4,40	40,7316	407	40,7723	408	40,8131	408	40,8539	409	40,8948	409
4,41	41,1408	412	41,1820	411	41,2231	413	41,2644	413	41,3057	413
4,42	41,5542	415	41,5957	416	41,6373	417	41,6790	417	41,7207	417
4,43	41,9717	419	42,0136	421	42,0557	420	42,0977	421	42,1398	422
4,44	42,3934	424	42,4358	424	42,4782	425	42,5207	425	42,5632	426
4,45	42,8193	428	42,8621	429	42,9050	429	42,9479	430	42,9909	430
4,46	43,2495	433	43,2928	433	43,3361	433	43,3794	434	43,4228	435
4,47	43,6841	437	43,7278	437	43,7715	438	43,8153	438	43,8591	439
4,48	44,1230	441	44,1671	442	44,2113	442	44,2555	443	44,2998	443
4,49	44,5663	446	44,6109	446	44,6555	447	44,7002	447	44,7449	448

Błąd przybliżeń podanych na str. 264 i 265 jest nie większy niż 0,00005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,0000557 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
27,4450	275	27,4725	274	27,4999	275	27,5274	276	27,5550	275	4,00
27,7207	277	27,7484	277	27,7761	278	27,8039	278	27,8317	278	4,01
27,9991	280	28,0271	280	28,0551	281	28,0832	280	28,1112	281	4,02
28,2803	283	28,3086	283	28,3369	283	28,3652	284	28,3936	284	4,03
28,5643	286	28,5929	286	28,6215	286	28,6501	287	28,6788	286	4,04
28,8512	289	28,8801	289	28,9090	289	28,9379	289	28,9668	290	4,05
29,1410	292	29,1702	291	29,1993	292	29,2285	293	29,2578	292	4,06
29,4337	295	29,4632	294	29,4926	295	29,5221	295	29,5516	296	4,07
29,7294	297	29,7591	298	29,7889	298	29,8187	298	29,8485	298	4,08
30,0280	300	30,0580	301	30,0881	301	30,1182	301	30,1483	301	4,09
30,3296	303	30,3599	304	30,3903	304	30,4207	304	30,4511	305	4,10
30,6343	306	30,6649	307	30,6956	307	30,7263	307	30,7570	307	4,11
30,9420	309	30,9729	310	31,0039	310	31,0349	310	31,0659	311	4,12
31,2528	312	31,2840	313	31,3153	313	31,3466	314	31,3780	314	4,13
31,5667	316	31,5983	316	31,6299	316	31,6615	317	31,6932	317	4,14
31,8838	319	31,9157	319	31,9476	320	31,9796	320	32,0116	320	4,15
32,2041	322	32,2363	322	32,2685	323	32,3008	323	32,3331	324	4,16
32,5276	325	32,5601	326	32,5927	326	32,6253	326	32,6579	327	4,17
32,8544	328	32,8872	329	32,9201	329	32,9530	330	32,9860	330	4,18
33,1844	332	33,2176	332	33,2508	333	33,2841	332	33,3173	334	4,19
33,5178	335	33,5513	335	33,5848	336	33,6184	336	33,6520	337	4,20
33,8545	338	33,8883	339	33,9222	339	33,9561	340	33,9901	340	4,21
34,1946	342	34,2288	342	34,2630	343	34,2973	343	34,3316	343	4,22
34,5381	345	34,5726	346	34,6072	346	34,6418	347	34,6765	346	4,23
34,8850	349	34,9199	350	34,9549	349	34,9898	350	35,0248	350	4,24
35,2355	352	35,2707	353	35,3060	353	35,3413	354	35,3767	354	4,25
35,5895	356	35,6251	356	35,6607	357	35,6964	357	35,7321	357	4,26
35,9470	360	35,9830	360	36,0190	360	36,0550	360	36,0910	361	4,27
36,3082	363	36,3445	363	36,3808	364	36,4172	364	36,4536	365	4,28
36,6729	367	36,7096	367	36,7463	368	36,7831	368	36,8199	368	4,29
37,0414	370	37,0784	371	37,1155	371	37,1526	372	37,1898	372	4,30
37,4135	374	37,4509	375	37,4884	375	37,5259	375	37,5634	376	4,31
37,7894	378	37,8272	378	37,8650	379	37,9029	379	37,9408	379	4,32
38,1690	382	38,2072	382	38,2454	383	38,2837	383	38,3220	383	4,33
38,5525	386	38,5911	386	38,6297	386	38,6683	387	38,7070	387	4,34
38,9398	390	38,9788	390	39,0178	390	39,0568	391	39,0959	391	4,35
39,3311	393	39,3704	394	39,4098	394	39,4492	394	39,4886	395	4,36
39,7262	397	39,7659	398	39,8057	398	39,8455	399	39,8854	399	4,37
40,1253	402	40,1655	401	40,2056	403	40,2459	402	40,2861	403	4,38
40,5285	405	40,5690	406	40,6096	406	40,6502	407	40,6909	407	4,39
40,9357	409	40,9766	410	41,0176	410	41,0586	411	41,0997	411	4,40
41,3470	413	41,3883	414	41,4297	415	41,4712	414	41,5126	416	4,41
41,7624	418	41,8042	418	41,8460	418	41,8878	419	41,9297	420	4,42
42,1820	422	42,2242	422	42,2664	423	42,3087	423	42,3510	424	4,43
42,6058	426	42,6484	427	42,6911	427	42,7338	427	42,7765	428	4,44
43,0339	430	43,0769	431	43,1200	431	43,1631	432	43,2063	432	4,45
43,4663	434	43,5097	436	43,5533	435	43,5968	436	43,6404	437	4,46
43,9030	439	43,9469	440	43,9909	440	44,0349	440	44,0789	441	4,47
44,3441	444	44,3885	444	44,4329	444	44,4773	445	44,5218	445	4,48
44,7897	448	44,8345	448	44,8793	449	44,9242	449	44,9691	450	4,49

cosh x

The error of the approximations given on pp. 264 and 265 is not greater than 0,00005 and the error of an approximation obtained by linear interpolation is less than 0,0000557 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
4,50	45,0141	450	45,0591	451	45,1042	451	45,1493	452	45,1945	452
4,51	45,4664	455	45,5119	455	45,5574	456	45,6030	456	45,6486	457
4,52	45,9232	460	45,9692	460	46,0152	460	46,0612	461	46,1073	461
4,53	46,3847	464	46,4311	464	46,4775	465	46,5240	465	46,5705	466
4,54	46,8507	469	46,8976	469	46,9445	470	46,9915	470	47,0385	470
4,55	47,3215	473	47,3688	474	47,4162	474	47,4636	475	47,5111	475
4,56	47,7970	478	47,8448	478	47,8926	479	47,9405	480	47,9885	480
4,57	48,2772	483	48,3255	484	48,3739	484	48,4223	484	48,4707	485
4,58	48,7623	488	48,8111	488	48,8599	489	48,9088	489	48,9577	490
4,59	49,2523	493	49,3016	493	49,3509	493	49,4002	495	49,4497	494
4,60	49,7472	497	49,7969	499	49,8468	498	49,8966	499	49,9465	500
4,61	50,2471	502	50,2973	503	50,3476	504	50,3980	504	50,4484	505
4,62	50,7519	508	50,8027	508	50,8535	509	50,9044	509	50,9553	510
4,63	51,2619	513	51,3132	513	51,3645	514	51,4159	514	51,4673	515
4,64	51,7770	518	51,8288	518	51,8806	519	51,9325	520	51,9845	520
4,65	52,2973	523	52,3496	524	52,4020	524	52,4544	524	52,5068	526
4,66	52,8228	528	52,8756	529	52,9285	530	52,9815	530	53,0345	530
4,67	53,3536	533	53,4069	535	53,4604	534	53,5138	536	53,5674	535
4,68	53,8897	539	53,9436	539	53,9975	541	54,0516	540	54,1056	542
4,69	54,4312	544	54,4856	545	54,5401	546	54,5947	546	54,6493	547
4,70	54,9781	550	55,0331	551	55,0882	551	55,1433	552	55,1985	552
4,71	55,5306	555	55,5861	556	55,6417	557	55,6974	557	55,7531	558
4,72	56,0886	561	56,1447	562	56,2009	562	56,2571	563	56,3134	563
4,73	56,6522	567	56,7089	567	56,7656	568	56,8224	568	56,8792	569
4,74	57,2215	572	57,2787	573	57,3360	574	57,3934	574	57,4508	575
4,75	57,7965	578	57,8543	579	57,9122	579	57,9701	580	58,0281	580
4,76	58,3772	584	58,4356	585	58,4941	585	58,5526	586	58,6112	586
4,77	58,9639	589	59,0228	591	59,0819	591	59,1410	592	59,2002	592
4,78	59,5564	596	59,6160	596	59,6756	597	59,7353	597	59,7950	599
4,79	60,1548	602	60,2150	603	60,2753	603	60,3356	603	60,3959	604
4,80	60,7593	608	60,8201	608	60,8809	610	60,9419	609	61,0028	610
4,81	61,3699	614	61,4313	614	61,4927	615	61,5542	616	61,6158	617
4,82	61,9866	620	62,0486	621	62,1107	621	62,1728	622	62,2350	622
4,83	62,6095	626	62,6721	627	62,7348	628	62,7976	628	62,8604	629
4,84	63,2386	633	63,3019	633	63,3652	634	63,4286	635	63,4921	635
4,85	63,8741	639	63,9380	640	64,0020	640	64,0660	641	64,1301	641
4,86	64,5160	645	64,5805	646	64,6451	647	64,7098	647	64,7745	648
4,87	65,1643	652	65,2295	652	65,2947	654	65,3601	653	65,4254	655
4,88	65,8191	659	65,8850	659	65,9509	660	66,0169	660	66,0829	661
4,89	66,4805	666	66,5471	665	66,6136	667	66,6803	667	66,7470	667
4,90	67,1486	672	67,2158	672	67,2830	673	67,3503	674	67,4177	675
4,91	67,8234	678	67,8912	680	67,9592	679	68,0271	681	68,0952	681
4,92	68,5050	685	68,5735	686	68,6421	687	68,7108	687	68,7795	688
4,93	69,1934	692	69,2626	693	69,3319	693	69,4012	695	69,4707	695
4,94	69,8887	699	69,9586	700	70,0286	701	70,0987	701	70,1688	702
4,95	70,5910	706	70,6616	707	70,7323	708	70,8031	708	70,8739	709
4,96	71,3004	713	71,3717	714	71,4431	715	71,5146	715	71,5861	717
4,97	72,0169	721	72,0890	721	72,1611	722	72,2333	722	72,3055	724
4,98	72,7406	728	72,8134	728	72,8862	730	72,9592	729	73,0321	731
4,99	73,4716	735	73,5451	736	73,6187	736	73,6923	738	73,7661	738

Błąd przybliżeń podanych na str. 266 i 267 jest nie większy niż 0,00005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,0000593 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
45,2397	453	45,2850	452	45,3302	454	45,3756	454	45,4210	454	4,50
45,6943	457	45,7400	457	45,7857	458	45,8315	459	45,8774	458	4,51
46,1534	461	46,1995	463	46,2458	462	46,2920	463	46,3383	464	4,52
46,6171	467	46,6638	466	46,7104	468	46,7572	467	46,8039	468	4,53
47,0855	471	47,1326	472	47,1798	472	47,2270	472	47,2742	473	4,54
47,5586	476	47,6062	476	47,6538	477	47,7015	477	47,7492	478	4,55
48,0365	481	48,0846	481	48,1327	481	48,1808	482	48,2290	482	4,56
48,5192	485	48,5677	486	48,6163	486	48,6649	487	48,7136	487	4,57
49,0067	490	49,0557	491	49,1048	491	49,1539	492	49,2031	492	4,58
49,4991	495	49,5486	496	49,5982	496	49,6478	497	49,6975	497	4,59
49,9965	500	50,0465	501	50,0966	501	50,1467	501	50,1968	503	4,60
50,4989	505	50,5494	505	50,5999	507	50,6506	506	50,7012	507	4,61
51,0063	510	51,0573	511	51,1084	511	51,1595	512	51,2107	512	4,62
51,5188	515	51,5703	516	51,6219	517	51,6736	517	51,7253	517	4,63
52,0365	520	52,0885	521	52,1406	522	52,1928	522	52,2450	523	4,64
52,5594	525	52,6119	527	52,6646	527	52,7173	527	52,7700	528	4,65
53,0875	531	53,1406	532	53,1938	532	53,2470	532	53,3002	534	4,66
53,6209	537	53,6746	537	53,7283	537	53,7820	538	53,8358	539	4,67
54,1598	541	54,2139	543	54,2682	542	54,3224	544	54,3768	544	4,68
54,7040	547	54,7587	548	54,8135	548	54,8683	549	54,9232	549	4,69
55,2537	552	55,3089	554	55,3643	554	55,4197	554	55,4751	555	4,70
55,6089	558	55,8647	559	55,9206	559	55,9765	560	56,0325	561	4,71
56,3697	564	56,4261	564	56,4825	565	56,5390	566	56,5956	566	4,72
56,9361	570	56,9931	570	57,0501	571	57,1072	571	57,1643	572	4,73
57,5083	575	57,5658	576	57,6234	576	57,6810	577	57,7387	578	4,74
58,0861	581	58,1442	582	58,2024	582	58,2606	583	58,3189	583	4,75
58,6698	587	58,7285	588	58,7873	588	58,8461	588	58,9049	590	4,76
59,2594	593	59,3187	593	59,3780	594	59,4374	595	59,4969	595	4,77
59,8549	598	59,9147	600	59,9747	600	60,0347	600	60,0947	601	4,78
60,4563	605	60,5168	605	60,5773	606	60,6379	607	60,6986	607	4,79
61,0638	611	61,1249	612	61,1861	612	61,2473	613	61,3086	613	4,80
61,6775	617	61,7392	617	61,8009	618	61,8627	619	61,9246	620	4,81
62,2972	624	62,3596	624	62,4220	624	62,4844	625	62,5469	626	4,82
62,9233	629	62,9862	630	63,0492	631	63,1123	631	63,1754	632	4,83
63,5556	636	63,6192	636	63,6828	637	63,7465	638	63,8103	638	4,84
64,1942	643	64,2585	642	64,3227	644	64,3871	644	64,4515	645	4,85
64,8393	649	64,9042	649	64,9691	650	65,0341	651	65,0992	651	4,86
65,4909	655	65,5564	656	65,6220	656	65,6876	658	65,7534	657	4,87
66,1490	662	66,2152	662	66,2814	663	66,3477	664	66,4141	664	4,88
66,8137	669	66,8806	669	66,9475	670	67,0145	670	67,0815	671	4,89
67,4852	675	67,5527	676	67,6203	676	67,6879	677	67,7556	678	4,90
68,1633	682	68,2315	683	68,2998	683	68,3681	684	68,4365	685	4,91
68,8483	689	68,9172	689	68,9861	690	69,0551	691	69,1242	692	4,92
69,5402	695	69,6097	697	69,6794	697	69,7491	698	69,8189	698	4,93
70,2390	703	70,3093	703	70,3796	704	70,4500	705	70,5205	705	4,94
70,9448	710	71,0158	710	71,0868	712	71,1580	711	71,2291	713	4,95
71,6578	717	71,7295	717	71,8012	718	71,8730	719	71,9449	720	4,96
72,3779	724	72,4503	725	72,5228	725	72,5953	726	72,6679	727	4,97
73,1052	731	73,1783	733	73,2516	732	73,3248	734	73,3982	734	4,98
73,8399	738	73,9137	740	73,9877	740	74,0617	741	74,1358	741	4,99

cosh x

The error of the approximations given on pp. 266 and 267 is not greater than 0,00005 and the error of an approximation obtained by linear interpolation is less than 0,0000593 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
5,00	74,2099	743	74,2842	743	74,3585	744	74,4329	745	74,5074	745
5,01	74,9557	750	75,0307	751	75,1058	751	75,1809	752	75,2561	753
5,02	75,7090	757	75,7847	758	75,8605	759	75,9364	760	76,0124	760
5,03	76,4698	765	76,5463	766	76,6229	766	76,6995	767	76,7762	768
5,04	77,2382	773	77,3155	774	77,3929	774	77,4703	775	77,5478	776
5,05	78,0144	781	78,0925	781	78,1706	782	78,2488	783	78,3271	784
5,06	78,7984	789	78,8773	789	78,9562	790	79,0352	790	79,1142	792
5,07	79,5903	796	79,6699	797	79,7496	798	79,8294	799	79,9093	799
5,08	80,3901	805	80,4706	805	80,5511	806	80,6317	806	80,7123	808
5,09	81,1980	812	81,2792	814	81,3606	814	81,4420	814	81,5234	816
5,10	82,0140	821	82,0961	821	82,1782	822	82,2604	823	82,3427	824
5,11	82,8382	829	82,9211	829	83,0040	831	83,0871	831	83,1702	832
5,12	83,6707	837	83,7544	838	83,8382	838	83,9220	840	84,0060	840
5,13	84,5115	846	84,5961	846	84,6807	847	84,7654	848	84,8502	849
5,14	85,3608	854	85,4462	855	85,5317	856	85,6173	856	85,7029	858
5,15	86,2186	863	86,3049	863	86,3912	865	86,4777	865	86,5642	866
5,16	87,0851	871	87,1722	872	87,2594	873	87,3467	874	87,4341	875
5,17	87,9603	880	88,0483	880	88,1363	882	88,2245	883	88,3128	883
5,18	88,8442	889	88,9331	890	89,0221	890	89,1111	892	89,2003	892
5,19	89,7371	897	89,8268	899	89,9167	900	90,0067	900	90,0967	901
5,20	90,6389	907	90,7296	907	90,8203	909	90,9112	909	91,0021	911
5,21	91,5498	916	91,6414	916	91,7330	918	91,8248	919	91,9167	919
5,22	92,4698	925	92,5623	926	92,6549	927	92,7476	928	92,8404	929
5,23	93,3991	934	93,4925	936	93,5861	936	93,6797	937	93,7734	938
5,24	94,3377	944	94,4321	945	94,5266	945	94,6211	947	94,7158	947
5,25	95,2858	953	95,3811	954	95,4765	955	95,5720	956	95,6676	958
5,26	96,2433	963	96,3396	964	96,4360	965	96,5325	966	96,6291	966
5,27	97,2106	972	97,3078	974	97,4052	974	97,5026	976	97,6002	976
5,28	98,1875	982	98,2857	983	98,3840	985	98,4825	985	98,5810	986
5,29	99,1742	993	99,2735	993	99,3728	994	99,4722	995	99,5717	996
5,29										
5,30	101,171	100	100,271	100	100,371	101	100,472	100	100,572	101
5,31	101,178	101	101,279	101	101,380	102	101,482	101	101,583	102
5,32	102,194	103	102,297	102	102,399	102	102,501	103	102,604	103
5,33	103,221	104	103,325	103	103,428	104	103,532	103	103,635	104
5,34	104,259	104	104,363	104	104,467	105	104,572	105	104,677	104
5,35	105,307	105	105,412	105	105,517	106	105,623	106	105,729	105
5,36	106,365	106	106,471	107	106,578	106	106,684	107	106,791	107
5,37	107,434	107	107,541	108	107,649	108	107,757	107	107,864	108
5,38	108,513	109	108,622	109	108,731	108	108,839	109	108,948	109
5,39	109,604	110	109,714	109	109,823	110	109,933	110	110,043	110
5,40	110,705	111	110,816	111	110,927	111	111,038	111	111,149	111
5,41	111,818	112	111,930	112	112,042	112	112,154	112	112,266	112
5,42	112,942	113	113,055	113	113,168	113	113,281	113	113,394	114
5,43	114,077	114	114,191	114	114,305	115	114,420	114	114,534	115
5,44	115,223	116	115,339	115	115,454	115	115,569	116	115,685	116
5,45	116,381	117	116,498	116	116,614	117	116,731	117	116,848	117
5,46	117,551	117	117,668	118	117,786	118	117,904	118	118,022	118
5,47	118,732	119	118,851	119	118,970	119	119,089	119	119,208	119
5,48	119,925	120	120,045	121	120,166	120	120,286	120	120,406	121
5,49	121,131	121	121,252	121	121,373	122	121,495	121	121,616	122

Błąd przybliżeń otrzymanych na str. 268 i 269 jest dla $5,000 \leq x < 5,299$ nie większy niż 0,00005, a dla $5,299 \leq x < 5,500$ nie większy niż 0,0005. Błąd przybliżenia otrzymanego przez interpolację liniową jest dla $5,000 < x < 5,299$ mniejszy niż 0,0000626 + błąd zaokrąglenia wyniku, a dla $5,299 < x < 5,500$ mniejszy niż 0,000516 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
74,5819	746	74,6565	747	74,7312	748	74,8060	748	74,8808	749	5,00
75,3314	753	75,4067	755	75,4822	755	75,5577	756	75,6333	757	5,01
76,0884	761	76,1645	762	76,2407	763	76,3170	764	76,3934	764	5,02
76,8530	769	76,9299	770	77,0069	770	77,0839	772	77,1611	771	5,03
77,6254	776	77,7030	778	77,7808	778	77,8586	779	77,9365	779	5,04
78,4055	784	78,4839	785	78,5624	786	78,6410	787	78,7197	787	5,05
79,1934	792	79,2726	793	79,3519	794	79,4313	795	79,5108	795	5,06
79,9892	800	80,0692	801	80,1493	802	80,2295	803	80,3098	803	5,07
80,7931	808	80,8739	809	80,9548	810	81,0358	811	81,1169	811	5,08
81,6050	816	81,6866	817	81,7683	819	81,8502	818	81,9320	820	5,09
82,4251	824	82,5075	826	82,5901	826	82,6727	827	82,7554	828	5,10
83,2534	833	83,3367	834	83,4201	834	83,5035	835	83,5870	837	5,11
84,0900	842	84,1742	842	84,2584	843	84,3427	844	84,4271	844	5,12
84,9351	850	85,0201	850	85,1051	852	85,1903	852	85,2755	853	5,13
85,7887	858	85,8745	859	85,9604	860	86,0464	861	86,1325	861	5,14
86,6508	867	86,7375	868	86,8243	868	86,9111	870	86,9981	870	5,15
87,5216	875	87,6091	877	87,6968	877	87,7845	879	87,8724	879	5,16
88,4011	885	88,4896	885	88,5781	886	88,6667	887	88,7554	888	5,17
89,2895	894	89,3789	894	89,4683	895	89,5578	896	89,6474	897	5,18
90,1868	903	90,2771	903	90,3674	904	90,4578	905	90,5483	906	5,19
91,0932	911	91,1843	912	91,2755	914	91,3669	914	91,4583	915	5,20
92,0086	921	92,1007	921	92,1928	923	92,2851	923	92,3774	924	5,21
92,9333	929	93,0262	931	93,1193	932	93,2125	932	93,3057	934	5,22
93,8672	939	93,9611	940	94,0551	941	94,1492	942	94,2434	943	5,23
94,8105	949	94,9054	949	95,0003	951	95,0954	951	95,1905	953	5,24
95,7634	958	95,8592	959	95,9551	960	96,0511	961	96,1472	961	5,25
96,7257	968	96,8225	969	96,9194	969	97,0163	971	97,1134	972	5,26
97,6978	977	97,7955	979	97,8934	979	97,9913	981	98,0894	981	5,27
98,6796	987	98,7783	989	98,8772	989	98,9761	990	99,0751	991	5,28
99,6713	997	99,7710	999	99,8709	999	99,9708	1000			5,29
								100,071	100	5,29
100,673	101	100,774	101	100,875	100	100,975	101	101,076	102	5,30
101,685	101	101,786	102	101,888	102	101,990	102	102,092	102	5,31
102,707	102	102,809	103	102,912	103	103,015	103	103,118	103	5,32
103,739	104	103,843	103	103,946	104	104,050	105	104,155	104	5,33
104,781	105	104,886	105	104,991	105	105,096	105	105,201	106	5,34
105,834	106	105,940	106	106,046	106	106,152	107	106,259	106	5,35
106,898	107	107,005	107	107,112	107	107,219	107	107,326	108	5,36
107,972	108	108,080	108	108,188	109	108,297	108	108,405	108	5,37
109,057	109	109,166	110	109,276	109	109,385	109	109,494	110	5,38
110,153	111	110,264	110	110,374	110	110,484	111	110,595	110	5,39
111,260	112	111,372	111	111,483	112	111,595	111	111,706	112	5,40
112,378	113	112,491	112	112,603	113	112,716	113	112,829	113	5,41
113,508	113	113,621	114	113,735	114	113,849	114	113,963	114	5,42
114,649	114	114,763	115	114,878	115	114,993	115	115,108	115	5,43
115,801	116	115,917	116	116,033	116	116,149	116	116,265	116	5,44
116,965	117	117,082	117	117,199	117	117,316	117	117,433	118	5,45
118,140	118	118,258	119	118,377	118	118,495	119	118,614	118	5,46
119,327	120	119,447	119	119,566	120	119,686	120	119,806	119	5,47
120,527	120	120,647	121	120,768	121	120,889	121	121,010	121	5,48
121,738	122	121,860	122	121,982	122	122,104	122	122,226	122	5,49

cosh x

The error of the approximations given on pp. 268 and 269 is for $5,000 \leq x < 5,299$ not greater than 0,00005 and for $5,299 < x < 5,500$ not greater than 0,0005. The error of an approximation obtained by linear interpolation is for $5,000 < x < 5,299$ less than $0,0000626 +$ the error of rounding off the result and for $5,299 < x < 5,500$ less than $0,000516 +$ the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
5,50	122,348	122	122,470	123	122,593	123	122,716	122	122,838	123
5,51	123,578	123	123,701	124	123,825	124	123,949	124	124,073	124
5,52	124,820	124	124,944	125	125,069	126	125,195	125	125,320	125
5,53	126,074	126	126,200	126	126,326	127	126,453	126	126,579	127
5,54	127,341	127	127,468	128	127,596	128	127,724	127	127,851	128
5,55	128,621	128	128,749	129	128,878	129	129,007	129	129,136	129
5,56	129,913	130	130,043	130	130,173	131	130,304	130	130,434	131
5,57	131,219	131	131,350	132	131,482	131	131,613	132	131,745	132
5,58	132,538	132	132,670	133	132,803	133	132,936	133	133,069	133
5,59	133,870	134	134,004	134	134,138	134	134,272	134	134,406	135
5,60	135,215	135	135,350	136	135,486	135	135,621	136	135,757	136
5,61	136,574	137	136,711	136	136,847	137	136,984	137	137,121	138
5,62	137,947	138	138,085	138	138,223	138	138,361	138	138,499	139
5,63	139,333	139	139,472	140	139,612	139	139,751	140	139,891	140
5,64	140,733	141	140,874	141	141,015	141	141,156	141	141,297	142
5,65	142,147	143	142,290	142	142,432	143	142,575	142	142,717	143
5,66	143,576	144	143,720	143	143,863	144	144,007	145	144,152	144
5,67	145,019	145	145,164	145	145,309	146	145,455	145	145,600	146
5,68	146,476	147	146,623	147	146,770	147	146,917	146	147,063	148
5,69	147,949	148	148,097	148	148,245	148	148,393	148	148,541	149
5,70	149,435	150	149,585	150	149,735	149	149,884	150	150,034	150
5,71	150,937	151	151,088	151	151,239	152	151,391	151	151,542	152
5,72	152,454	153	152,607	152	152,759	153	152,912	153	153,065	153
5,73	153,986	154	154,140	155	154,295	154	154,449	154	154,603	155
5,74	155,534	155	155,689	156	155,845	156	156,001	156	156,157	156
5,75	157,097	157	157,254	157	157,411	158	157,569	158	157,727	157
5,76	158,676	158	158,834	159	158,993	159	159,152	160	159,312	159
5,77	160,270	161	160,431	160	160,591	161	160,752	161	160,913	161
5,78	161,881	162	162,043	162	162,205	163	162,368	162	162,530	163
5,79	163,508	164	163,672	163	163,835	164	163,998	164	164,163	165
5,80	165,151	166	165,317	165	165,482	165	165,647	166	165,813	166
5,81	166,811	167	166,978	167	167,145	167	167,312	168	167,480	167
5,82	168,488	168	168,656	169	168,825	169	168,994	169	169,163	169
5,83	170,181	170	170,351	171	170,522	170	170,692	171	170,863	171
5,84	171,891	172	172,063	172	172,235	173	172,408	172	172,580	173
5,85	173,619	173	173,792	174	173,966	174	174,140	174	174,314	175
5,86	175,363	176	175,539	176	175,715	175	175,890	176	176,066	176
5,87	177,126	177	177,303	178	177,481	177	177,658	178	177,836	178
5,88	178,906	179	179,085	179	179,264	180	179,444	179	179,623	180
5,89	180,704	181	180,885	181	181,066	181	181,247	181	181,428	182
5,90	182,520	183	182,703	183	182,886	182	183,068	184	183,252	183
5,91	184,354	185	184,539	185	184,724	184	184,908	185	185,093	186
5,92	186,207	186	186,393	187	186,580	187	186,767	187	186,954	187
5,93	188,079	188	188,267	188	188,455	189	188,644	188	188,832	189
5,94	189,969	190	190,159	190	190,349	191	190,540	190	190,730	191
5,95	191,878	192	192,070	192	192,262	192	192,454	193	192,647	193
5,96	193,806	194	194,000	194	194,194	195	194,389	194	194,583	195
5,97	195,754	196	195,950	196	196,146	196	196,342	197	196,539	196
5,98	197,721	198	197,919	198	198,117	198	198,315	199	198,514	199
5,99	199,709	199	199,908	200	200,108	201	200,309	200	200,509	201

Błąd przybliżeń podanych na str. 270 i 271 jest nie większy niż 0,0005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,000526 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
122,961	123	123,084	123	123,207	124	123,331	123	123,454	124	5,50
124,197	124	124,321	125	124,446	124	124,570	125	124,695	125	5,51
125,445	126	125,571	125	125,696	126	125,822	126	125,948	126	5,52
126,706	127	126,833	127	126,960	127	127,087	127	127,214	127	5,53
127,979	128	128,107	128	128,235	129	128,364	128	128,492	129	5,54
129,265	130	129,395	129	129,524	130	129,654	129	129,783	130	5,55
130,565	130	130,695	131	130,826	131	130,957	131	131,088	131	5,56
131,877	132	132,009	132	132,141	132	132,273	132	132,405	133	5,57
133,202	133	133,335	134	133,469	133	133,602	134	133,736	134	5,58
134,541	134	134,675	135	134,810	135	134,945	135	135,080	135	5,59
135,893	136	136,029	136	136,165	136	136,301	136	136,437	137	5,60
137,259	137	137,396	137	137,533	138	137,671	138	137,809	138	5,61
138,638	139	138,777	138	138,915	139	139,054	140	139,194	139	5,62
140,031	140	140,171	141	140,312	140	140,452	140	140,592	141	5,63
141,439	141	141,580	142	141,722	141	141,863	142	142,005	142	5,64
142,860	143	143,003	143	143,146	143	143,289	144	143,433	143	5,65
144,296	144	144,440	145	144,585	144	144,729	145	144,874	145	5,66
145,746	146	145,892	146	146,038	146	146,184	146	146,330	146	5,67
147,211	147	147,358	147	147,505	148	147,653	148	147,801	148	5,68
148,690	149	148,839	149	148,988	149	149,137	149	149,286	149	5,69
150,184	151	150,335	150	150,485	151	150,636	150	150,786	151	5,70
151,694	152	151,846	151	151,997	153	152,150	152	152,302	152	5,71
153,218	154	153,372	153	153,525	154	153,679	153	153,832	154	5,72
154,758	155	154,913	155	155,068	155	155,223	155	155,378	156	5,73
156,313	157	156,470	156	156,626	157	156,783	157	156,940	157	5,74
157,884	158	158,042	158	158,200	159	158,359	158	158,517	159	5,75
159,471	160	159,631	159	159,790	160	159,950	160	160,110	160	5,76
161,074	161	161,235	161	161,396	162	161,558	161	161,719	162	5,77
162,693	162	162,855	163	163,018	163	163,181	164	163,345	163	5,78
164,328	164	164,492	165	164,657	164	164,821	165	164,986	165	5,79
165,979	166	166,145	166	166,311	167	166,478	166	166,644	167	5,80
167,647	168	167,815	168	167,983	168	168,151	168	168,319	169	5,81
169,332	169	169,501	170	169,671	170	169,841	170	170,011	170	5,82
171,034	171	171,205	171	171,376	172	171,548	171	171,719	172	5,83
172,753	173	172,926	173	173,099	173	173,272	173	173,445	174	5,84
174,489	174	174,663	175	174,838	175	175,013	175	175,188	175	5,85
176,242	177	176,419	176	176,595	177	176,772	177	176,949	177	5,86
178,014	178	178,192	178	178,370	179	178,549	178	178,727	179	5,87
179,803	180	179,983	180	180,163	180	180,343	180	180,523	181	5,88
181,610	181	181,791	182	181,973	182	182,155	183	182,338	182	5,89
183,435	183	183,618	184	183,802	184	183,986	184	184,170	184	5,90
185,279	185	185,464	185	185,649	186	185,835	186	186,021	186	5,91
187,141	187	187,328	187	187,515	188	187,703	188	187,891	188	5,92
189,021	189	189,210	190	189,400	189	189,589	190	189,779	190	5,93
190,921	191	191,112	191	191,303	192	191,495	191	191,686	192	5,94
192,840	193	193,033	193	193,226	193	193,419	194	193,613	193	5,95
194,778	195	194,973	195	195,168	195	195,363	195	195,558	196	5,96
196,735	197	196,932	197	197,129	197	197,326	198	197,524	197	5,97
198,713	198	198,911	199	199,110	200	199,310	199	199,509	200	5,98
200,710	200	200,910	201	201,111	202	201,313	201	201,514	202	5,99

cosh x

The error of the approximations given on pp. 270 and 271 is not greater than 0,0005 and the error of an approximation obtained by linear interpolation is less than 0,000526 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
6,00	201,716	201	201,917	202	202,119	203	202,322	202	202,524	203
6,01	203,743	204	203,947	204	204,151	204	204,355	204	204,559	205
6,02	205,791	205	205,996	207	206,203	206	206,409	206	206,615	207
6,03	207,859	208	208,067	208	208,275	208	208,483	209	208,692	209
6,04	209,948	210	210,158	210	210,368	210	210,578	211	210,789	211
6,05	212,058	212	212,270	212	212,482	213	212,695	213	212,908	213
6,06	214,189	214	214,403	215	214,618	214	214,832	215	215,047	216
6,07	216,341	217	216,558	217	216,775	216	216,991	218	217,209	217
6,08	218,516	218	218,734	219	218,953	219	219,172	220	219,392	219
6,09	220,712	221	220,933	221	221,154	221	221,375	221	221,596	222
6,10	222,930	223	223,153	223	223,376	224	223,600	224	223,824	223
6,11	225,170	226	225,396	225	225,621	226	225,847	226	226,073	226
6,12	227,433	228	227,661	228	227,889	228	228,117	228	228,345	228
6,13	229,719	230	229,949	230	230,179	230	230,409	231	230,640	231
6,14	232,028	232	232,260	232	232,492	233	232,725	233	232,958	233
6,15	234,360	234	234,594	235	234,829	235	235,064	235	235,299	235
6,16	236,715	237	236,952	237	237,189	237	237,426	238	237,664	238
6,17	239,094	239	239,333	240	239,573	239	239,812	240	240,052	241
6,18	241,497	242	241,739	241	241,980	243	242,223	242	242,465	243
6,19	243,924	244	244,168	244	244,412	245	244,657	245	244,902	245
6,20	246,376	246	246,622	247	246,869	247	247,116	247	247,363	247
6,21	248,852	249	249,101	249	249,350	249	249,599	250	249,849	250
6,22	251,353	251	251,604	252	251,856	252	252,108	252	252,360	253
6,23	253,879	254	254,133	254	254,387	255	254,642	254	254,896	255
6,24	256,430	257	256,687	257	256,944	257	257,201	257	257,458	258
6,25	259,007	260	259,267	259	259,526	260	259,786	259	260,045	261
6,26	261,610	262	261,872	262	262,134	262	262,396	263	262,659	263
6,27	264,240	264	264,504	265	264,769	265	265,034	265	265,299	265
6,28	266,895	267	267,162	268	267,430	267	267,697	268	267,965	268
6,29	269,578	269	269,847	270	270,117	271	270,388	270	270,658	271
6,30	272,287	272	272,559	273	272,832	273	273,105	273	273,378	274
6,31	275,023	276	275,299	275	275,574	276	275,850	276	276,126	276
6,32	277,787	278	278,065	279	278,344	278	278,622	279	278,901	279
6,33	280,579	281	280,860	281	281,141	281	281,422	282	281,704	282
6,34	283,399	284	283,683	283	283,966	285	284,251	284	284,535	285
6,35	286,247	287	286,534	286	286,820	287	287,107	288	287,395	287
6,36	289,124	289	289,413	290	289,703	290	289,993	290	290,283	290
6,37	292,030	292	292,322	292	292,614	293	292,907	293	293,200	294
6,38	294,965	295	295,260	295	295,555	296	295,851	296	296,147	296
6,39	297,929	298	298,227	299	298,526	298	298,824	299	299,123	299
6,40	300,923	301	301,224	302	301,526	301	301,827	302	302,129	303
6,41	303,948	304	304,252	304	304,556	305	304,861	305	305,166	305
6,42	307,002	308	307,310	307	307,617	308	307,925	308	308,233	308
6,43	310,088	310	310,398	311	310,709	310	311,019	312	311,331	311
6,44	313,204	314	313,518	313	313,831	314	314,145	315	314,460	314
6,45	316,352	316	316,668	317	316,985	317	317,302	318	317,620	318
6,46	319,531	320	319,851	320	320,171	320	320,491	321	320,812	321
6,47	322,743	323	323,066	323	323,389	323	323,712	324	324,036	324
6,48	325,986	326	326,312	327	326,639	327	326,966	327	327,293	327
6,49	329,262	330	329,592	330	329,922	330	330,252	330	330,582	331

Błąd przybliżeń podanych na str. 272 i 273 jest nie większy niż 0,0005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,000542 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 274.

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
202,727	203	202,930	203	203,133	203	203,336	203	203,539	204	6,00
204,764	205	204,969	205	205,174	205	205,379	206	205,585	206	6,01
206,822	207	207,029	207	207,236	207	207,443	208	207,651	208	6,02
208,901	209	209,110	209	209,319	209	209,528	210	209,738	210	6,03
211,000	211	211,211	211	211,422	212	211,634	212	211,846	212	6,04
213,121	213	213,334	213	213,547	214	213,761	214	213,975	214	6,05
215,263	215	215,478	215	215,693	216	215,909	216	216,125	216	6,06
217,426	217	217,643	218	217,861	218	218,079	218	218,297	219	6,07
219,611	220	219,831	220	220,051	220	220,271	220	220,491	221	6,08
221,818	222	222,040	222	222,262	223	222,485	222	222,707	223	6,09
224,047	225	224,272	224	224,496	225	224,721	224	224,945	225	6,10
226,299	227	226,526	226	226,752	227	226,979	227	227,206	227	6,11
228,573	229	228,802	229	229,031	229	229,260	230	229,490	229	6,12
230,871	231	231,102	231	231,333	231	231,564	232	231,796	232	6,13
233,191	233	233,424	234	233,658	234	233,892	234	234,126	234	6,14
235,534	236	235,770	236	236,006	236	236,242	236	236,478	237	6,15
237,902	238	238,140	238	238,378	238	238,616	239	238,855	239	6,16
240,293	240	240,533	241	240,774	241	241,015	241	241,256	241	6,17
242,708	242	242,950	243	243,193	244	243,437	243	243,680	244	6,18
245,147	245	245,392	246	245,638	245	245,883	246	246,129	247	6,19
247,610	248	247,858	248	248,106	248	248,354	249	248,603	249	6,20
250,099	250	250,349	251	250,600	250	250,850	251	251,101	252	6,21
252,613	252	252,865	253	253,118	253	253,371	254	253,625	254	6,22
255,151	256	255,407	255	255,662	256	255,918	256	256,174	256	6,23
257,716	257	257,973	259	258,232	258	258,490	259	258,749	258	6,24
260,306	260	260,566	261	260,827	261	261,088	261	261,349	261	6,25
262,922	263	263,185	263	263,448	264	263,712	264	263,976	264	6,26
265,564	266	265,830	266	266,096	266	266,362	267	266,629	266	6,27
268,233	268	268,501	269	268,770	269	269,039	269	269,308	270	6,28
270,929	271	271,200	271	271,471	272	271,743	272	272,015	272	6,29
273,652	273	273,925	275	274,200	274	274,474	274	274,748	275	6,30
276,402	276	276,678	277	276,955	277	277,232	278	277,510	277	6,31
279,180	279	279,459	280	279,739	280	280,019	280	280,299	280	6,32
281,986	282	282,268	282	282,550	283	282,833	283	283,116	283	6,33
284,820	285	285,105	285	285,390	285	285,675	286	285,961	286	6,34
287,682	288	287,970	288	288,258	288	288,546	289	288,835	289	6,35
290,573	291	290,864	291	291,155	291	291,446	292	291,738	292	6,36
293,494	293	293,787	294	294,081	294	294,375	295	294,670	295	6,37
296,443	297	296,740	297	297,037	297	297,334	297	297,631	298	6,38
299,422	300	299,722	300	300,022	300	300,322	301	300,623	300	6,39
302,432	302	302,734	303	303,037	303	303,340	304	303,644	304	6,40
305,471	306	305,777	306	306,083	306	306,389	307	306,696	306	6,41
308,541	309	308,850	309	309,159	309	309,468	310	309,778	310	6,42
311,642	312	311,954	312	312,266	312	312,578	313	312,891	313	6,43
314,774	315	315,089	315	315,404	316	315,720	316	316,036	316	6,44
317,938	318	318,256	318	318,574	319	318,893	319	319,212	319	6,45
321,133	321	321,454	322	321,776	322	322,098	322	322,420	323	6,46
324,360	325	324,685	325	325,010	325	325,335	325	325,660	326	6,47
327,620	328	327,948	328	328,276	329	328,605	328	328,933	329	6,48
330,913	331	331,244	331	331,575	332	331,907	332	332,239	333	6,49

cosh x

The error of the approximations given on pp. 272 and 273 is not greater than 0,0005 and the error of an approximation obtained by linear interpolation is less than 0,000542 + the error of rounding off the result.

An example of interpolation is given on p. 275.

XIV. Cosinus hiperboliczny ($\cosh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
6,50	332,572	332	332,904	333	333,237	334	333,571	334	333,905	334
6,51	335,914	336	336,250	336	336,586	337	336,923	337	337,260	338
6,52	339,290	339	339,629	340	339,969	340	340,309	341	340,650	341
6,53	342,700	343	343,043	343	343,386	343	343,729	344	344,073	345
6,54	346,144	346	346,490	347	346,837	347	347,184	347	347,531	348
6,55	349,623	350	349,973	350	350,323	350	350,673	351	351,024	351
6,56	353,137	353	353,490	354	353,844	354	354,198	354	354,552	355
6,57	356,686	356	357,042	358	357,400	357	357,757	358	358,115	359
6,58	360,270	361	360,631	361	360,992	361	361,353	361	361,714	362
6,59	363,891	364	364,255	365	364,620	364	364,984	366	365,350	365
6,60	367,548	368	367,916	368	368,284	369	368,653	368	369,021	370
6,61	371,242	372	371,614	371	371,985	373	372,358	372	372,730	373
6,62	374,973	375	375,348	376	375,724	376	376,100	376	376,476	377
6,63	378,742	379	379,121	379	379,500	380	379,880	380	380,260	380
6,64	382,548	383	382,931	383	383,314	384	383,698	383	384,081	385
6,65	386,393	386	386,779	387	387,166	388	387,554	387	387,941	389
6,66	390,276	391	390,667	390	391,057	392	391,449	391	391,840	392
6,67	394,198	395	394,593	395	394,988	395	395,383	395	395,778	396
6,68	398,160	399	398,559	398	398,957	399	399,356	400	399,756	400
6,69	402,162	402	402,564	403	402,967	403	403,370	404	403,774	404
6,70	406,204	406	406,610	407	407,017	407	407,424	408	407,832	408
6,71	410,286	410	410,696	411	411,107	412	411,519	411	411,930	412
6,72	414,409	415	414,824	415	415,239	415	415,654	416	416,070	417
6,73	418,574	419	418,993	419	419,412	420	419,832	420	420,252	420
6,74	422,781	423	423,204	423	423,627	424	424,051	424	424,475	425
6,75	427,030	427	427,457	428	427,885	428	428,313	429	428,742	428
6,76	431,322	431	431,753	432	432,185	433	432,618	432	433,050	434
6,77	435,657	435	436,092	437	436,529	436	436,965	438	437,403	437
6,78	440,035	440	440,475	441	440,916	441	441,357	442	441,799	442
6,79	444,457	445	444,902	445	445,347	446	445,793	446	446,239	446
6,80	448,924	449	449,373	450	449,823	450	450,273	450	450,723	451
6,81	453,436	454	453,890	454	454,344	454	454,798	455	455,253	456
6,82	457,993	458	458,451	459	458,910	459	459,369	460	459,829	460
6,83	462,596	463	463,059	463	463,522	464	463,986	464	464,450	465
6,84	467,245	468	467,713	468	468,181	468	468,649	469	469,118	469
6,85	471,941	472	472,413	473	472,886	473	473,359	474	473,833	474
6,86	476,684	477	477,161	477	477,638	478	478,116	479	478,595	478
6,87	481,475	482	481,957	482	482,439	482	482,921	484	483,405	483
6,88	486,314	486	486,800	487	487,287	488	487,775	488	488,263	488
6,89	491,201	492	491,693	492	492,185	492	492,677	493	493,170	493
6,90	496,138	496	496,634	497	497,131	498	497,629	497	498,126	499

Dla $x \geq 6,910$ korzystamy ze wzoru

$$\cosh x \approx \frac{1}{2}e^x + 0,00025$$

z dokładnością do 0,00025.

Błąd przybliżeń podanych na str. 274 i 275 jest nie większy niż 0,0005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,000563 + błąd zaokrąglenia wyniku.

Przykład. Obliczmy $\cosh 6,53847$. W tym celu odczytujemy w tablicy, że $\cosh 6,538 \approx 345,452$ i $\delta = 346$, a w tablicy poprawek dla $\delta = 346$ i cyfr 4 i 7 liczby 138,4 i 242,2. Zatem $\cosh 6,53847 \approx 345,452 + 0,1384 + 0,02422 = 345,61462$ z dokładnością do 0,000563, czyli $\cosh 6,53847 \approx 345,615$ z dokładnością do 0,00095. (Poprawkę do liczby $\cosh 6,538 \approx 345,452$ można również obliczyć mnożąc $0,47 \cdot \delta = 0,47 \cdot 346 = 162,62$. Mamy wtedy $\cosh 6,53847 \approx 345,452 + 0,16262 = 345,61462$, jak poprzednio).

XIV. Hyperbolic cosine (cosh x)

5	δ	6	δ	7	δ	8	δ	9	δ	x
334,239	334	334,573	335	334,908	335	335,243	335	335,578	336	6,50
337,598	337	337,935	339	338,274	338	338,612	339	338,951	339	6,51
340,991	341	341,332	341	341,673	342	342,015	342	342,357	343	6,52
344,418	344	344,762	345	345,107	345	345,452	346	345,798	346	6,53
347,879	348	348,227	349	348,576	348	348,924	349	349,273	350	6,54
351,375	352	351,727	352	352,079	352	352,431	353	352,784	353	6,55
354,907	355	355,262	355	355,617	356	355,973	356	356,329	357	6,56
358,474	358	358,832	359	359,191	360	359,551	359	359,910	360	6,57
362,076	362	362,438	363	362,801	363	363,164	363	363,527	364	6,58
365,715	366	366,081	366	366,447	367	366,814	367	367,181	367	6,59
369,391	369	369,760	370	370,130	370	370,500	371	370,871	371	6,60
373,103	373	373,476	374	373,850	374	374,224	374	374,598	375	6,61
376,853	377	377,230	377	377,607	378	377,985	378	378,363	379	6,62
380,640	381	381,021	381	381,402	382	381,784	382	382,166	382	6,63
384,466	384	384,850	385	385,235	386	385,621	386	386,007	386	6,64
388,330	388	388,718	389	389,107	389	389,496	390	389,886	390	6,65
392,232	393	392,625	393	393,018	393	393,411	393	393,804	394	6,66
396,174	397	396,571	396	396,967	398	397,365	397	397,762	398	6,67
400,156	400	400,556	401	400,957	401	401,358	402	401,760	402	6,68
404,178	404	404,582	405	404,987	405	405,392	406	405,798	406	6,69
408,240	408	408,648	409	409,057	409	409,466	410	409,876	410	6,70
412,342	413	412,755	413	413,168	413	413,581	414	413,995	414	6,71
416,487	416	416,903	417	417,320	418	417,738	418	418,156	418	6,72
420,672	421	421,093	422	421,515	421	421,936	422	422,358	423	6,73
424,900	425	425,325	426	425,751	426	426,177	426	426,603	427	6,74
429,170	430	429,600	430	430,030	430	430,460	431	430,891	431	6,75
433,484	433	433,917	435	434,352	434	434,786	435	435,221	436	6,76
437,840	438	438,278	439	438,717	439	439,156	439	439,595	440	6,77
442,241	442	442,683	443	443,126	443	443,569	444	444,013	444	6,78
446,685	447	447,132	447	447,579	448	448,027	449	448,476	448	6,79
451,174	452	451,626	452	452,078	452	452,530	453	452,983	453	6,80
455,709	456	456,165	456	456,621	457	457,078	457	457,535	458	6,81
460,289	460	460,749	461	461,210	462	461,672	462	462,134	462	6,82
464,915	465	465,380	465	465,845	467	466,312	466	466,778	467	6,83
469,587	470	470,057	470	470,527	471	470,998	471	471,469	472	6,84
474,307	474	474,781	475	475,256	476	475,732	476	476,208	476	6,85
479,073	480	479,553	480	480,033	480	480,513	481	480,994	481	6,86
483,888	484	484,372	485	484,857	485	485,342	486	485,828	486	6,87
488,751	489	489,240	490	489,730	490	490,220	490	490,710	491	6,88
493,663	494	494,157	495	494,652	495	495,147	495	495,642	496	6,89
498,625	499	499,124	499	499,623	500	500,123	500	500,623	501	6,90

cosh x

For $x \geq 6,910$ we use the formula

$$\cosh x \approx \frac{1}{2}e^x + 0,00025$$

with error less than 0,00025.

The error of the approximations given on pp. 274 and 275 is not greater than 0,0005 and the error of an approximation obtained by linear interpolation is less than 0,000563 + the error of rounding off the result.

Example. To find $\cosh 6,53847$ we read in the table that $\cosh 6,538 \approx 345,452$ and $\delta = 346$ and in the table of proportional parts we find for $\delta = 346$ and the figures 4 and 7 the numbers 138,4 and 242,2. Consequently $\cosh 6,53847 \approx 345,452 + 0,1384 + 0,02422 = 345,61462$ with error less than 0,000563, i. e. $\cosh 6,53847 \approx 345,615$ with error less than 0,00095. (The correction for the number $\cosh 6,538 \approx 345,452$ can also be found by multiplying $0,47 \cdot \delta = 0,47 \cdot 346 = 162,62$. We then have $\cosh 6,53847 \approx 345,452 + 0,16262 = 345,61462$ as before).