

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
0,00	0,00000	100	0,00100	100	0,00200	100	0,00300	100	0,00400	100
0,01	0,01000	100	0,01100	100	0,01200	100	0,01300	100	0,01400	100
0,02	0,02000	100	0,02100	100	0,02200	100	0,02300	100	0,02400	100
0,03	0,03000	100	0,03100	101	0,03201	100	0,03301	100	0,03401	100
0,04	0,04001	100	0,04101	100	0,04201	100	0,04301	100	0,04401	101
0,05	0,05002	100	0,05102	100	0,05202	100	0,05302	101	0,05403	100
0,06	0,06004	100	0,06104	100	0,06204	100	0,06304	100	0,06404	101
0,07	0,07006	100	0,07106	100	0,07206	100	0,07306	101	0,07407	100
0,08	0,08009	100	0,08109	100	0,08209	101	0,08310	100	0,08410	100
0,09	0,09012	101	0,09113	100	0,09213	100	0,09313	101	0,09414	100
0,10	0,10017	100	0,10117	101	0,10218	100	0,10318	101	0,10419	100
0,11	0,11022	101	0,11123	100	0,11223	101	0,11324	101	0,11425	100
0,12	0,12029	101	0,12130	100	0,12230	101	0,12331	101	0,12432	101
0,13	0,13037	101	0,13138	100	0,13238	101	0,13339	101	0,13440	101
0,14	0,14046	101	0,14147	101	0,14248	101	0,14349	101	0,14450	101
0,15	0,15056	101	0,15157	102	0,15259	101	0,15360	101	0,15461	101
0,16	0,16068	102	0,16170	101	0,16271	101	0,16372	102	0,16474	101
0,17	0,17082	101	0,17183	102	0,17285	101	0,17386	102	0,17488	101
0,18	0,18097	102	0,18199	102	0,18301	101	0,18402	102	0,18504	102
0,19	0,19115	101	0,19216	102	0,19318	102	0,19420	102	0,19522	102
0,20	0,20134	102	0,20236	102	0,20338	102	0,20440	102	0,20542	102
0,21	0,21155	102	0,21257	102	0,21359	102	0,21461	103	0,21564	102
0,22	0,22178	102	0,22280	103	0,22383	102	0,22485	103	0,22588	102
0,23	0,23203	103	0,23306	103	0,23409	102	0,23511	103	0,23614	103
0,24	0,24231	103	0,24334	103	0,24437	103	0,24540	103	0,24643	103
0,25	0,25261	103	0,25364	104	0,25468	103	0,25571	103	0,25674	103
0,26	0,26294	103	0,26397	104	0,26501	103	0,26604	104	0,26708	103
0,27	0,27329	104	0,27433	104	0,27537	103	0,27640	104	0,27744	104
0,28	0,28367	104	0,28471	104	0,28575	104	0,28679	104	0,28783	104
0,29	0,29408	104	0,29512	105	0,29617	104	0,29721	104	0,29825	105
0,30	0,30452	105	0,30557	104	0,30661	105	0,30766	104	0,30870	105
0,31	0,31499	105	0,31604	105	0,31709	105	0,31814	105	0,31919	105
0,32	0,32549	105	0,32654	105	0,32759	106	0,32865	105	0,32970	105
0,33	0,33602	106	0,33708	105	0,33813	106	0,33919	105	0,34024	106
0,34	0,34659	106	0,34765	106	0,34871	106	0,34977	105	0,35082	106
0,35	0,35719	106	0,35825	106	0,35931	107	0,36038	106	0,36144	106
0,36	0,36783	106	0,36889	107	0,36996	106	0,37102	107	0,37209	107
0,37	0,37850	107	0,37957	107	0,38064	107	0,38171	107	0,38278	107
0,38	0,38921	107	0,39028	108	0,39136	107	0,39243	108	0,39351	107
0,39	0,39996	108	0,40104	108	0,40212	107	0,40319	108	0,40427	108
0,40	0,41075	108	0,41183	109	0,41292	108	0,41400	108	0,41508	108
0,41	0,42158	109	0,42267	109	0,42376	108	0,42484	109	0,42593	109
0,42	0,43246	109	0,43355	109	0,43464	109	0,43573	109	0,43682	109
0,43	0,44337	110	0,44447	109	0,44556	110	0,44666	109	0,44775	110
0,44	0,45434	109	0,45543	110	0,45653	110	0,45763	110	0,45873	110
0,45	0,46534	111	0,46645	110	0,46755	110	0,46865	111	0,46976	110
0,46	0,47640	110	0,47750	111	0,47861	111	0,47972	111	0,48083	111
0,47	0,48750	111	0,48861	111	0,48972	112	0,49084	111	0,49195	111
0,48	0,49865	111	0,49976	112	0,50088	112	0,50200	112	0,50312	112
0,49	0,50984	113	0,51097	112	0,51209	112	0,51321	113	0,51434	112

Błąd przybliżeń podanych na str. 206 i 207 jest nie większy niż 0,000005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,00000507 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
0,00500	100	0,00600	100	0,00700	100	0,00800	100	0,00900	100	0,00
0,01500	100	0,01600	100	0,01700	100	0,01800	100	0,01900	100	0,01
0,02500	100	0,02600	100	0,02700	100	0,02800	100	0,02900	100	0,02
0,03501	100	0,03601	100	0,03701	100	0,03801	100	0,03901	100	0,03
0,04502	100	0,04602	100	0,04702	100	0,04802	100	0,04902	100	0,04
0,05503	100	0,05603	100	0,05703	100	0,05803	100	0,05903	101	0,05
0,06505	100	0,06605	100	0,06705	100	0,06805	100	0,06905	101	0,06
0,07507	100	0,07607	101	0,07708	100	0,07808	100	0,07908	101	0,07
0,08510	101	0,08611	100	0,08711	100	0,08811	101	0,08912	100	0,08
0,09514	101	0,09615	100	0,09715	101	0,09816	100	0,09916	101	0,09
0,10519	101	0,10620	100	0,10720	101	0,10821	101	0,10922	100	0,10
0,11525	101	0,11626	101	0,11727	100	0,11827	101	0,11928	101	0,11
0,12533	100	0,12633	101	0,12734	101	0,12835	101	0,12936	101	0,12
0,13541	101	0,13642	101	0,13743	101	0,13844	101	0,13945	101	0,13
0,14551	101	0,14652	101	0,14753	101	0,14854	101	0,14955	101	0,14
0,15562	101	0,15663	102	0,15765	101	0,15866	101	0,15967	101	0,15
0,16575	101	0,16676	102	0,16778	101	0,16879	102	0,16981	101	0,16
0,17589	102	0,17691	102	0,17793	101	0,17894	102	0,17996	101	0,17
0,18606	101	0,18707	102	0,18809	102	0,18911	102	0,19013	102	0,18
0,19624	102	0,19726	102	0,19828	102	0,19930	102	0,20032	102	0,19
0,20644	102	0,20746	102	0,20848	102	0,20950	102	0,21052	103	0,20
0,21666	102	0,21768	103	0,21871	102	0,21973	102	0,22075	103	0,21
0,22690	103	0,22793	102	0,22895	103	0,22998	103	0,23101	102	0,22
0,23717	103	0,23820	102	0,23922	103	0,24025	103	0,24128	103	0,23
0,24746	103	0,24849	103	0,24952	103	0,25055	103	0,25158	103	0,24
0,25777	104	0,25881	103	0,25984	103	0,26087	104	0,26191	103	0,25
0,26811	104	0,26915	103	0,27018	104	0,27122	104	0,27226	103	0,26
0,27848	104	0,27952	104	0,28056	103	0,28159	104	0,28263	104	0,27
0,28887	104	0,28991	105	0,29096	104	0,29200	104	0,29304	104	0,28
0,29930	104	0,30034	105	0,30139	104	0,30243	105	0,30348	104	0,29
0,30975	105	0,31080	105	0,31185	104	0,31289	105	0,31394	105	0,30
0,32024	105	0,32129	105	0,32234	105	0,32339	105	0,32444	105	0,31
0,33075	106	0,33181	105	0,33286	105	0,33391	106	0,33497	105	0,32
0,34130	106	0,34236	106	0,34342	105	0,34447	106	0,34553	106	0,33
0,35188	107	0,35295	106	0,35401	106	0,35507	106	0,35613	106	0,34
0,36250	107	0,36357	106	0,36463	107	0,36570	106	0,36676	107	0,35
0,37316	107	0,37423	106	0,37529	107	0,37636	107	0,37743	107	0,36
0,38385	107	0,38492	107	0,38599	108	0,38707	107	0,38814	107	0,37
0,39458	108	0,39566	107	0,39673	108	0,39781	108	0,39889	107	0,38
0,40535	108	0,40643	108	0,40751	108	0,40859	108	0,40967	108	0,39
0,41616	109	0,41725	108	0,41833	108	0,41941	109	0,42050	108	0,40
0,42702	108	0,42810	109	0,42919	109	0,43028	109	0,43137	109	0,41
0,43791	109	0,43900	109	0,44009	110	0,44119	109	0,44228	109	0,42
0,44885	110	0,44995	109	0,45104	110	0,45214	110	0,45324	110	0,43
0,45983	110	0,46093	111	0,46204	110	0,46314	110	0,46424	110	0,44
0,47086	111	0,47197	110	0,47307	111	0,47418	111	0,47529	111	0,45
0,48194	111	0,48305	111	0,48416	111	0,48527	111	0,48638	112	0,46
0,49306	112	0,49418	112	0,49530	111	0,49641	112	0,49753	112	0,47
0,50424	112	0,50536	112	0,50648	112	0,50760	112	0,50872	112	0,48
0,51546	113	0,51659	112	0,51771	113	0,51884	113	0,51997	113	0,49

$\sinh x$

The error of the approximations given on pp. 206 and 207 is not greater than 0,000005 and the error of an approximation obtained by linear interpolation is less than 0,00000507 + the error of rounding off the result.

An example of interpolation is given on p. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
0,50	0,52110	112	0,52222	113	0,52335	113	0,52448	113	0,52561	113
0,51	0,53240	113	0,53353	113	0,53466	114	0,53580	113	0,53693	114
0,52	0,54375	114	0,54489	114	0,54603	114	0,54717	114	0,54831	114
0,53	0,55516	115	0,55631	114	0,55745	115	0,55860	114	0,55974	115
0,54	0,56663	115	0,56778	115	0,56893	115	0,57008	115	0,57123	115
0,55	0,57815	116	0,57931	115	0,58046	116	0,58162	116	0,58278	115
0,56	0,58973	116	0,59089	116	0,59205	117	0,59322	116	0,59438	116
0,57	0,60137	117	0,60254	117	0,60371	116	0,60487	117	0,60604	117
0,58	0,61307	117	0,61424	118	0,61542	117	0,61659	118	0,61777	117
0,59	0,62483	118	0,62601	118	0,62719	118	0,62837	118	0,62955	118
0,60	0,63665	119	0,63784	119	0,63903	118	0,64021	119	0,64140	119
0,61	0,64854	119	0,64973	120	0,65093	119	0,65212	119	0,65331	120
0,62	0,66049	120	0,66169	120	0,66289	120	0,66409	120	0,66529	120
0,63	0,67251	120	0,67371	121	0,67492	121	0,67613	121	0,67734	120
0,64	0,68459	122	0,68581	121	0,68702	121	0,68823	122	0,68945	121
0,65	0,69675	122	0,69797	122	0,69919	122	0,70041	122	0,70163	122
0,66	0,70897	123	0,71020	122	0,71142	123	0,71265	123	0,71388	123
0,67	0,72126	124	0,72250	123	0,72373	124	0,72497	123	0,72620	124
0,68	0,73363	124	0,73487	124	0,73611	124	0,73735	125	0,73860	124
0,69	0,74607	125	0,74732	125	0,74857	125	0,74982	125	0,75107	125
0,70	0,75858	126	0,75984	126	0,76110	125	0,76235	126	0,76361	126
0,71	0,77117	127	0,77244	126	0,77370	127	0,77497	126	0,77623	127
0,72	0,78384	127	0,78511	127	0,78638	128	0,78766	127	0,78893	127
0,73	0,79659	127	0,79786	128	0,79914	128	0,80042	129	0,80171	128
0,74	0,80941	129	0,81070	129	0,81199	128	0,81327	129	0,81456	129
0,75	0,82232	129	0,82361	130	0,82491	129	0,82620	130	0,82750	130
0,76	0,83530	131	0,83661	130	0,83791	131	0,83922	130	0,84052	131
0,77	0,84838	131	0,84969	131	0,85100	131	0,85231	132	0,85363	131
0,78	0,86153	132	0,86285	132	0,86417	133	0,86550	132	0,86682	132
0,79	0,87478	132	0,87610	133	0,87743	134	0,87877	133	0,88010	133
0,80	0,88811	133	0,88944	134	0,89078	134	0,89212	134	0,89346	134
0,81	0,90152	135	0,90287	135	0,90422	135	0,90557	135	0,90692	135
0,82	0,91503	136	0,91639	136	0,91775	135	0,91910	136	0,92046	136
0,83	0,92863	137	0,93000	137	0,93137	136	0,93273	137	0,93410	137
0,84	0,94233	137	0,94370	138	0,94508	137	0,94645	138	0,94783	138
0,85	0,95612	138	0,95750	138	0,95888	139	0,96027	139	0,96166	139
0,86	0,97000	139	0,97139	140	0,97279	139	0,97418	140	0,97558	140
0,87	0,98398	140	0,98538	141	0,98679	140	0,98819	141	0,98960	141
0,88	0,99806	141	0,99947	142	1,00089	141	1,00230	142	1,00372	142
0,89	1,01224	142	1,01366	142	1,01508	143	1,01651	143	1,01794	142
0,90	1,02652	143	1,02795	143	1,02938	144	1,03082	144	1,03226	144
0,91	1,04090	144	1,04234	145	1,04379	144	1,04523	145	1,04668	145
0,92	1,05539	145	1,05684	146	1,05830	145	1,05975	146	1,06121	146
0,93	1,06998	146	1,07144	147	1,07291	147	1,07438	146	1,07584	147
0,94	1,08468	147	1,08615	148	1,08763	148	1,08911	148	1,09059	148
0,95	1,09948	149	1,10097	149	1,10246	149	1,10395	149	1,10544	149
0,96	1,11440	150	1,11590	150	1,11740	150	1,11890	150	1,12040	150
0,97	1,12943	151	1,13094	151	1,13245	151	1,13396	151	1,13547	152
0,98	1,14457	152	1,14609	152	1,14761	153	1,14914	152	1,15066	153
0,99	1,15983	153	1,16136	153	1,16289	154	1,16443	153	1,16596	154

Błąd przybliżeń podanych na str. 208 i 209 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. 232.

XII. Hyperbolic sine ($\sinh x$)

5.	δ	6	δ	7	δ	8	δ	9	δ	x
0,52674	113	0,52787	113	0,52900	113	0,53013	114	0,53127	113	0,50
0,53807	113	0,53920	114	0,54034	114	0,54148	114	0,54262	113	0,51
0,54945	114	0,55059	114	0,55173	115	0,55288	114	0,55402	114	0,52
0,56089	115	0,56204	114	0,56318	115	0,56433	115	0,56548	115	0,53
0,57238	116	0,57354	115	0,57469	115	0,57584	116	0,57700	115	0,54
0,58393	116	0,58509	116	0,58625	116	0,58741	116	0,58857	116	0,55
0,59554	117	0,59671	116	0,59787	117	0,59904	116	0,60020	117	0,56
0,60721	117	0,60838	117	0,60955	118	0,61073	117	0,61190	117	0,57
0,61894	118	0,62012	118	0,62130	117	0,62247	118	0,62365	118	0,58
0,63073	119	0,63192	118	0,63310	118	0,63428	119	0,63547	118	0,59
0,64259	119	0,64378	119	0,64497	119	0,64616	119	0,64735	119	0,60
0,65451	119	0,65570	120	0,65690	120	0,65810	119	0,65929	120	0,61
0,66649	120	0,66769	121	0,66890	120	0,67010	120	0,67130	121	0,62
0,67854	121	0,67975	121	0,68096	121	0,68217	121	0,68338	121	0,63
0,69066	122	0,69188	121	0,69309	122	0,69431	122	0,69553	122	0,64
0,70285	122	0,70407	123	0,70530	122	0,70652	123	0,70775	122	0,65
0,71511	123	0,71634	123	0,71757	123	0,71880	123	0,72003	123	0,66
0,72744	124	0,72868	123	0,72991	124	0,73115	124	0,73239	124	0,67
0,73984	125	0,74109	124	0,74233	125	0,74358	124	0,74482	125	0,68
0,75232	125	0,75357	125	0,75482	125	0,75607	126	0,75733	125	0,69
0,76487	126	0,76613	126	0,76739	126	0,76865	126	0,76991	126	0,70
0,77750	126	0,77876	127	0,78003	127	0,78130	127	0,78257	127	0,71
0,79020	128	0,79148	127	0,79275	128	0,79403	128	0,79531	128	0,72
0,80299	128	0,80427	128	0,80555	129	0,80684	128	0,80812	129	0,73
0,81585	129	0,81714	130	0,81844	129	0,81973	129	0,82102	130	0,74
0,82880	130	0,83010	130	0,83140	130	0,83270	130	0,83400	130	0,75
0,84183	131	0,84314	131	0,84445	131	0,84576	131	0,84707	131	0,76
0,85494	132	0,85626	132	0,85758	131	0,85889	132	0,86021	132	0,77
0,86814	133	0,86947	132	0,87079	133	0,87212	133	0,87345	133	0,78
0,88143	133	0,88276	134	0,88410	133	0,88543	134	0,88677	134	0,79
0,89480	135	0,89615	134	0,89749	134	0,89883	135	0,90018	134	0,80
0,90827	135	0,90962	135	0,91097	135	0,91232	136	0,91368	135	0,81
0,92182	136	0,92318	136	0,92454	137	0,92591	136	0,92727	136	0,82
0,93547	137	0,93684	137	0,93821	137	0,93958	137	0,94095	138	0,83
0,94921	138	0,95059	138	0,95197	138	0,95335	138	0,95473	139	0,84
0,96305	138	0,96443	139	0,96582	139	0,96721	140	0,96861	139	0,85
0,97698	140	0,97838	140	0,97978	140	0,98118	140	0,98258	140	0,86
0,99101	141	0,99242	140	0,99382	141	0,99523	142	0,99665	141	0,87
1,00514	141	1,00655	142	1,00797	142	1,00939	142	1,01081	143	0,88
1,01936	143	1,02079	143	1,02222	143	1,02365	143	1,02508	144	0,89
1,03370	143	1,03513	144	1,03657	144	1,03801	145	1,03946	144	0,90
1,04813	145	1,04958	145	1,05103	145	1,05248	145	1,05393	146	0,91
1,06267	146	1,06413	146	1,06559	146	1,06705	146	1,06851	147	0,92
1,07731	147	1,07878	148	1,08026	147	1,08173	147	1,08320	148	0,93
1,09207	148	1,09355	148	1,09503	148	1,09651	149	1,09800	148	0,94
1,10693	149	1,10842	149	1,10991	150	1,11141	150	1,11291	149	0,95
1,12190	151	1,12341	150	1,12491	151	1,12642	150	1,12792	151	0,96
1,13699	151	1,13850	152	1,14002	152	1,14154	151	1,14305	152	0,97
1,15219	152	1,15371	153	1,15524	153	1,15677	153	1,15830	153	0,98
1,16750	154	1,16904	154	1,17058	154	1,17212	154	1,17366	154	0,99

$\sinh x$

The error of the approximations given on pp. 208 and 209 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. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
1,00	1,17520	154	1,17674	155	1,17829	155	1,17984	154	1,18138	155
1,01	1,19069	156	1,19225	155	1,19380	156	1,19536	156	1,19692	156
1,02	1,20630	157	1,20787	157	1,20944	157	1,21101	157	1,21258	157
1,03	1,22203	158	1,22361	158	1,22519	158	1,22677	159	1,22836	158
1,04	1,23788	159	1,23947	160	1,24107	159	1,24266	160	1,24426	159
1,05	1,25386	160	1,25546	161	1,25707	160	1,25867	161	1,26028	161
1,06	1,26996	161	1,27157	162	1,27319	162	1,27481	162	1,27643	163
1,07	1,28619	163	1,28782	163	1,28945	163	1,29108	163	1,29271	164
1,08	1,30254	164	1,30418	165	1,30583	164	1,30747	165	1,30912	165
1,09	1,31903	165	1,32068	166	1,32234	166	1,32400	166	1,32566	166
1,10	1,33565	167	1,33732	167	1,33899	167	1,34066	167	1,34233	168
1,11	1,35240	168	1,35408	169	1,35577	168	1,35745	169	1,35914	169
1,12	1,36929	169	1,37098	170	1,37268	170	1,37438	170	1,37608	170
1,13	1,38631	171	1,38802	171	1,38973	172	1,39145	171	1,39316	172
1,14	1,40347	173	1,40520	172	1,40692	173	1,40865	173	1,41038	173
1,15	1,42078	174	1,42252	174	1,42426	174	1,42600	174	1,42774	174
1,16	1,43822	176	1,43998	175	1,44173	176	1,44349	175	1,44524	176
1,17	1,45581	177	1,45758	177	1,45935	177	1,46112	177	1,46289	177
1,18	1,47355	178	1,47533	178	1,47711	179	1,47890	178	1,48068	179
1,19	1,49143	180	1,49323	179	1,49502	180	1,49682	180	1,49862	181
1,20	1,50946	181	1,51127	182	1,51309	181	1,51490	182	1,51672	181
1,21	1,52764	183	1,52947	183	1,53130	183	1,53313	183	1,53496	183
1,22	1,54598	184	1,54782	184	1,54966	185	1,55151	185	1,55336	184
1,23	1,56447	186	1,56633	186	1,56819	186	1,57005	186	1,57191	186
1,24	1,58311	188	1,58499	187	1,58686	188	1,58874	188	1,59062	188
1,25	1,60192	189	1,60381	189	1,60570	189	1,60759	190	1,60949	189
1,26	1,62088	191	1,62279	191	1,62470	190	1,62660	191	1,62851	192
1,27	1,64001	192	1,64193	193	1,64386	192	1,64578	193	1,64771	193
1,28	1,65930	194	1,66124	194	1,66318	194	1,66512	194	1,66706	195
1,29	1,67876	195	1,68071	196	1,68267	196	1,68463	196	1,68659	196
1,30	1,69838	197	1,70035	198	1,70233	197	1,70430	198	1,70628	198
1,31	1,71818	199	1,72017	199	1,72216	199	1,72415	199	1,72614	200
1,32	1,73814	201	1,74015	201	1,74216	201	1,74417	201	1,74618	201
1,33	1,75828	203	1,76031	202	1,76233	203	1,76436	203	1,76639	203
1,34	1,77860	204	1,78064	204	1,78268	205	1,78473	204	1,78677	205
1,35	1,79909	206	1,80115	206	1,80321	207	1,80528	206	1,80734	207
1,36	1,81977	207	1,82184	208	1,82392	208	1,82600	209	1,82809	208
1,37	1,84062	210	1,84272	210	1,84482	209	1,84691	211	1,84902	210
1,38	1,86166	212	1,86378	211	1,86589	212	1,86801	212	1,87013	212
1,39	1,88289	213	1,88502	214	1,88716	213	1,88929	214	1,89143	214
1,40	1,90430	215	1,90645	216	1,90861	215	1,91076	216	1,91292	216
1,41	1,92591	217	1,92808	217	1,93025	217	1,93242	218	1,93460	218
1,42	1,94770	219	1,94989	220	1,95209	219	1,95428	220	1,95648	219
1,43	1,96970	221	1,97191	221	1,97412	221	1,97633	222	1,97855	221
1,44	1,99188	223	1,99411	224	1,99635	223	1,99858	224	2,00082	223
1,45	2,01427	225	2,01652	225	2,01877	226	2,02103	225	2,02328	226
1,46	2,03686	227	2,03913	227	2,04140	228	2,04368	227	2,04595	228
1,47	2,05965	230	2,06195	229	2,06424	229	2,06653	230	2,06883	230
1,48	2,08265	232	2,08497	231	2,08728	231	2,08959	232	2,09191	232
1,49	2,10586	233	2,10819	234	2,11053	233	2,11286	234	2,11520	234

Błąd przybliżeń podanych na str. 210 i 211 jest nie większy niż 0,000005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,00000527 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
1,18293	155	1,18448	155	1,18603	155	1,18758	156	1,18914	155	1,00
1,19848	156	1,20004	156	1,20160	157	1,20317	156	1,20473	157	1,01
1,21415	157	1,21572	158	1,21730	157	1,21887	158	1,22045	158	1,02
1,22994	159	1,23153	158	1,23311	159	1,23470	159	1,23629	159	1,03
1,24585	160	1,24745	160	1,24905	160	1,25065	160	1,25225	161	1,04
1,26189	161	1,26350	161	1,26511	162	1,26673	161	1,26834	162	1,05
1,27806	162	1,27968	162	1,28130	163	1,28293	163	1,28456	163	1,06
1,29435	163	1,29598	164	1,29762	164	1,29926	164	1,30090	164	1,07
1,31077	165	1,31242	165	1,31407	165	1,31572	165	1,31737	166	1,08
1,32732	166	1,32898	167	1,33065	166	1,33231	167	1,33398	167	1,09
1,34401	167	1,34568	168	1,34736	168	1,34904	168	1,35072	168	1,10
1,36083	169	1,36252	169	1,36421	169	1,36590	169	1,36759	170	1,11
1,37778	171	1,37949	170	1,38119	171	1,38290	170	1,38460	171	1,12
1,39488	171	1,39659	172	1,39831	172	1,40003	172	1,40175	172	1,13
1,41211	173	1,41384	173	1,41557	174	1,41731	173	1,41904	174	1,14
1,42948	175	1,43123	174	1,43297	175	1,43472	175	1,43647	175	1,15
1,44700	176	1,44876	176	1,45052	176	1,45228	177	1,45405	176	1,16
1,46466	178	1,46644	177	1,46821	178	1,46999	178	1,47177	178	1,17
1,48247	179	1,48426	179	1,48605	179	1,48784	180	1,48964	179	1,18
1,50043	180	1,50223	181	1,50404	180	1,50584	181	1,50765	181	1,19
1,51853	182	1,52035	182	1,52217	183	1,52400	182	1,52582	182	1,20
1,53679	184	1,53863	183	1,54046	184	1,54230	184	1,54414	184	1,21
1,55520	185	1,55705	186	1,55891	185	1,56076	185	1,56261	186	1,22
1,57377	187	1,57564	186	1,57750	187	1,57937	187	1,58124	187	1,23
1,59250	188	1,59438	188	1,59626	189	1,59815	188	1,60003	189	1,24
1,61138	190	1,61328	190	1,61518	190	1,61708	190	1,61898	190	1,25
1,63043	191	1,63234	192	1,63426	191	1,63617	192	1,63809	192	1,26
1,64964	193	1,65157	193	1,65350	193	1,65543	193	1,65736	194	1,27
1,66901	195	1,67096	194	1,67290	195	1,67485	195	1,67680	196	1,28
1,68855	196	1,69051	197	1,69248	196	1,69444	197	1,69641	197	1,29
1,70826	198	1,71024	198	1,71222	198	1,71420	199	1,71619	199	1,30
1,72814	200	1,73014	200	1,73214	200	1,73414	200	1,73614	200	1,31
1,74819	202	1,75021	201	1,75222	202	1,75424	202	1,75626	202	1,32
1,76842	203	1,77045	204	1,77249	203	1,77452	204	1,77656	204	1,33
1,78882	205	1,79087	206	1,79293	205	1,79498	206	1,79704	205	1,34
1,80941	207	1,81148	207	1,81355	207	1,81562	207	1,81769	208	1,35
1,83017	209	1,83226	209	1,83435	209	1,83644	209	1,83853	209	1,36
1,85112	210	1,85322	211	1,85533	211	1,85744	211	1,85955	211	1,37
1,87225	212	1,87437	213	1,87650	213	1,87863	213	1,88076	213	1,38
1,89357	214	1,89571	215	1,89786	214	1,90000	215	1,90215	215	1,39
1,91508	216	1,91724	216	1,91940	217	1,92157	217	1,92374	217	1,40
1,93678	218	1,93896	218	1,94114	219	1,94333	218	1,94551	219	1,41
1,95867	220	1,96087	221	1,96308	220	1,96528	221	1,96749	221	1,42
1,98076	222	1,98298	223	1,98521	222	1,98743	223	1,98966	222	1,43
2,00305	224	2,00529	224	2,00753	225	2,00978	224	2,01202	225	1,44
2,02554	226	2,02780	226	2,03006	227	2,03233	226	2,03459	227	1,45
2,04823	228	2,05051	229	2,05280	228	2,05508	229	2,05737	228	1,46
2,07113	230	2,07343	230	2,07573	231	2,07804	230	2,08034	231	1,47
2,09423	232	2,09655	233	2,09888	232	2,10120	233	2,10353	233	1,48
2,11754	235	2,11989	234	2,12223	235	2,12458	235	2,12693	235	1,49

$\sinh x$

The error of the approximations given on pp. 210 and 211 is not greater than 0,000005 and the error of an approximation obtained by linear interpolation is less than 0,00000527 + the error of rounding off the result.

An example of interpolation is given on p. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
1,50	2,12928	235	2,13163	236	2,13399	236	2,13635	236	2,13871	236
1,51	2,15291	238	2,15529	237	2,15766	238	2,16004	238	2,16242	239
1,52	2,17676	239	2,17915	240	2,18155	240	2,18395	241	2,18636	240
1,53	2,20082	242	2,20324	242	2,20566	242	2,20808	243	2,21051	242
1,54	2,22510	245	2,22755	244	2,22999	244	2,23243	245	2,23488	245
1,55	2,24961	246	2,25207	247	2,25454	247	2,25701	247	2,25948	247
1,56	2,27434	249	2,27683	249	2,27932	249	2,28181	249	2,28430	249
1,57	2,29930	251	2,30181	251	2,30432	251	2,30683	252	2,30935	252
1,58	2,32449	253	2,32702	254	2,32956	253	2,33209	254	2,33463	254
1,59	2,34991	256	2,35247	255	2,35502	256	2,35758	257	2,36015	256
1,60	2,37557	258	2,37815	258	2,38073	258	2,38331	259	2,38590	259
1,61	2,40146	260	2,40406	261	2,40667	261	2,40928	261	2,41189	261
1,62	2,42760	262	2,43022	263	2,43285	263	2,43548	264	2,43812	263
1,63	2,45397	265	2,45662	266	2,45928	265	2,46193	266	2,46459	266
1,64	2,48059	268	2,48327	268	2,48595	268	2,48863	268	2,49131	269
1,65	2,50746	271	2,51017	270	2,51287	270	2,51557	271	2,51828	271
1,66	2,53459	272	2,53731	273	2,54004	273	2,54277	274	2,54551	273
1,67	2,56196	275	2,56471	276	2,56747	275	2,57022	276	2,57298	276
1,68	2,58959	278	2,59237	278	2,59515	278	2,59793	279	2,60072	278
1,69	2,61748	280	2,62028	281	2,62309	281	2,62590	281	2,62871	281
1,70	2,64563	283	2,64846	283	2,65129	284	2,65413	284	2,65697	284
1,71	2,67405	285	2,67690	286	2,67976	286	2,68262	287	2,68549	287
1,72	2,70273	288	2,70561	289	2,70850	289	2,71139	289	2,71428	289
1,73	2,73168	292	2,73460	291	2,73751	291	2,74042	292	2,74334	292
1,74	2,76091	294	2,76385	294	2,76679	294	2,76973	295	2,77268	295
1,75	2,79041	297	2,79338	297	2,79635	297	2,79932	297	2,80229	298
1,76	2,82020	299	2,82319	300	2,82619	300	2,82919	300	2,83219	300
1,77	2,85026	302	2,85328	303	2,85631	302	2,85933	304	2,86237	303
1,78	2,88061	305	2,88366	305	2,88671	306	2,88977	306	2,89283	306
1,79	2,91125	308	2,91433	308	2,91741	308	2,92049	309	2,92358	309
1,80	2,94217	311	2,94528	312	2,94840	311	2,95151	312	2,95463	312
1,81	2,97340	314	2,97654	314	2,97968	314	2,98282	315	2,98597	315
1,82	3,00492	316	3,00808	318	3,01126	317	3,01443	318	3,01761	318
1,83	3,03674	320	3,03994	320	3,04314	320	3,04634	321	3,04955	321
1,84	3,06886	323	3,07209	323	3,07532	324	3,07856	324	3,08180	324
1,85	3,10129	326	3,10455	326	3,10781	327	3,11108	327	3,11435	327
1,86	3,13403	329	3,13732	330	3,14062	330	3,14392	330	3,14722	330
1,87	3,16709	332	3,17041	333	3,17374	332	3,17706	334	3,18040	333
1,88	3,20046	335	3,20381	336	3,20717	336	3,21053	337	3,21390	336
1,89	3,23415	339	3,23754	339	3,24093	339	3,24432	340	3,24772	340
1,90	3,26816	342	3,27158	342	3,27500	343	3,27843	343	3,28186	343
1,91	3,30250	346	3,30596	345	3,30941	346	3,31287	346	3,31633	347
1,92	3,33718	348	3,34066	349	3,34415	349	3,34764	350	3,35114	350
1,93	3,37218	352	3,37570	352	3,37922	353	3,38275	353	3,38628	353
1,94	3,40752	356	3,41108	355	3,41463	356	3,41819	357	3,42176	356
1,95	3,44321	358	3,44679	359	3,45038	360	3,45398	360	3,45758	360
1,96	3,47923	363	3,48286	362	3,48648	363	3,49011	363	3,49374	364
1,97	3,51561	366	3,51927	366	3,52293	366	3,52659	367	3,53026	367
1,98	3,55234	369	3,55603	369	3,55972	370	3,56342	371	3,56713	370
1,99	3,58942	373	3,59315	373	3,59688	373	3,60061	374	3,60435	374

Błąd przybliżeń podanych na str. 212 i 213 jest nie większy niż 0,000005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,00000546 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
2,14107	236	2,14343	237	2,14580	237	2,14817	237	2,15054	237	1,50
2,16481	238	2,16719	239	2,16958	239	2,17197	239	2,17436	240	1,51
2,18876	241	2,19117	241	2,19358	241	2,19599	241	2,19840	242	1,52
2,21293	243	2,21536	244	2,21780	243	2,22023	244	2,22267	243	1,53
2,23733	245	2,23978	246	2,24224	245	2,24469	246	2,24715	246	1,54
2,26195	247	2,26442	248	2,26690	248	2,26938	248	2,27186	248	1,55
2,28679	250	2,28929	250	2,29179	250	2,29429	251	2,29680	250	1,56
2,31187	252	2,31439	252	2,31691	252	2,31943	253	2,32196	253	1,57
2,33717	255	2,33972	254	2,34226	255	2,34481	255	2,34736	255	1,58
2,36271	257	2,36528	257	2,36785	257	2,37042	257	2,37299	258	1,59
2,38849	259	2,39108	259	2,39367	259	2,39626	260	2,39886	260	1,60
2,41450	261	2,41711	262	2,41973	262	2,42235	262	2,42497	263	1,61
2,44075	264	2,44339	264	2,44603	265	2,44868	264	2,45132	265	1,62
2,46725	267	2,46992	266	2,47258	267	2,47525	267	2,47792	267	1,63
2,49400	269	2,49669	269	2,49938	269	2,50207	270	2,50477	269	1,64
2,52099	272	2,52371	271	2,52642	272	2,52914	272	2,53186	273	1,65
2,54824	274	2,55098	274	2,55372	275	2,55647	274	2,55921	275	1,66
2,57574	277	2,57851	276	2,58127	277	2,58404	278	2,58682	277	1,67
2,60350	279	2,60629	280	2,60909	279	2,61188	280	2,61468	280	1,68
2,63152	282	2,63434	282	2,63716	282	2,63998	282	2,64280	283	1,69
2,65981	284	2,66265	285	2,66550	284	2,66834	285	2,67119	286	1,70
2,68836	287	2,69123	287	2,69410	287	2,69697	288	2,69985	288	1,71
2,71717	290	2,72007	290	2,72297	290	2,72587	291	2,72878	290	1,72
2,74626	293	2,74919	292	2,75211	293	2,75504	294	2,75798	293	1,73
2,77563	295	2,77858	295	2,78153	296	2,78449	296	2,78745	296	1,74
2,80527	298	2,80825	298	2,81123	299	2,81422	299	2,81721	299	1,75
2,83519	301	2,83820	301	2,84121	301	2,84422	302	2,84724	302	1,76
2,86540	304	2,86844	303	2,87147	305	2,87452	304	2,87756	305	1,77
2,89589	307	2,89896	306	2,90202	308	2,90510	307	2,90817	308	1,78
2,92667	310	2,92977	310	2,93287	310	2,93597	310	2,93907	310	1,79
2,95775	312	2,96087	313	2,96400	313	2,96713	313	2,97026	314	1,80
2,98912	315	2,99227	316	2,99543	316	2,99859	316	3,00175	317	1,81
3,02079	318	3,02397	319	3,02716	319	3,03035	319	3,03354	320	1,82
3,05276	321	3,05597	322	3,05919	322	3,06241	322	3,06563	323	1,83
3,08504	324	3,08828	325	3,09153	325	3,09478	325	3,09803	326	1,84
3,11762	328	3,12090	328	3,12418	328	3,12746	328	3,13074	329	1,85
3,15052	331	3,15383	331	3,15714	331	3,16045	332	3,16377	332	1,86
3,18373	334	3,18707	334	3,19041	335	3,19376	335	3,19711	335	1,87
3,21726	337	3,22063	338	3,22401	337	3,22738	338	3,23076	339	1,88
3,25112	340	3,25452	340	3,25792	341	3,26133	342	3,26475	341	1,89
3,28529	344	3,28873	344	3,29217	344	3,29561	345	3,29906	344	1,90
3,31980	347	3,32327	347	3,32674	347	3,33021	348	3,33369	349	1,91
3,35464	350	3,35814	350	3,36164	351	3,36515	352	3,36867	351	1,92
3,38981	354	3,39335	354	3,39689	354	3,40043	354	3,40397	355	1,93
3,42532	357	3,42889	358	3,43247	357	3,43604	358	3,43962	359	1,94
3,46118	360	3,46478	361	3,46839	361	3,47200	362	3,47562	361	1,95
3,49738	364	3,50102	364	3,50466	365	3,50831	365	3,51196	365	1,96
3,53393	367	3,53760	368	3,54128	368	3,54496	369	3,54865	369	1,97
3,57083	371	3,57454	372	3,57826	371	3,58197	372	3,58569	373	1,98
3,60809	375	3,61184	375	3,61559	375	3,61934	376	3,62310	376	1,99

$\sinh x$

The error of the approximations given on pp. 212 and 213 is not greater than 0,000005 and the error of an approximation obtained by linear interpolation is less than 0,00000546 + the error of rounding off the result.

An example of interpolation is given on p. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
2,00	3,62686	376	3,63062	377	3,63439	377	3,63816	378	3,64194	378
2,01	3,66466	380	3,66846	381	3,67227	381	3,67608	381	3,67989	381
2,02	3,70283	384	3,70667	384	3,71051	385	3,71436	385	3,71821	385
2,03	3,74138	387	3,74525	388	3,74913	388	3,75301	389	3,75690	389
2,04	3,78029	391	3,78420	392	3,78812	392	3,79204	392	3,79596	393
2,05	3,81958	395	3,82353	396	3,82749	396	3,83145	396	3,83541	396
2,06	3,85926	399	3,86325	399	3,86724	400	3,87124	400	3,87524	400
2,07	3,89932	403	3,90335	403	3,90738	403	3,91141	404	3,91545	405
2,08	3,93977	407	3,94384	407	3,94791	407	3,95198	408	3,95606	408
2,09	3,98061	411	3,98472	411	3,98883	411	3,99294	412	3,99706	413
2,10	4,02186	414	4,02600	415	4,03015	416	4,03431	416	4,03847	416
2,11	4,06350	419	4,06769	419	4,07188	419	4,07607	420	4,08027	421
2,12	4,10555	423	4,10978	423	4,11401	424	4,11825	424	4,12249	424
2,13	4,14801	427	4,15228	428	4,15656	427	4,16083	429	4,16512	428
2,14	4,19089	431	4,19520	432	4,19952	432	4,20384	432	4,20816	433
2,15	4,23419	435	4,23854	436	4,24290	436	4,24726	436	4,25162	437
2,16	4,27791	439	4,28230	440	4,28670	441	4,29111	440	4,29551	442
2,17	4,32205	444	4,32649	444	4,33093	445	4,33538	445	4,33983	446
2,18	4,36663	448	4,37111	449	4,37560	449	4,38009	450	4,38459	450
2,19	4,41165	452	4,41617	453	4,42070	454	4,42524	454	4,42978	454
2,20	4,45711	457	4,46168	457	4,46625	458	4,47083	458	4,47541	459
2,21	4,50301	461	4,50762	462	4,51224	463	4,51687	462	4,52149	464
2,22	4,54936	466	4,55402	467	4,55869	467	4,56336	467	4,56803	468
2,23	4,59617	470	4,60087	472	4,60559	471	4,61030	472	4,61502	472
2,24	4,64344	475	4,64819	476	4,65295	476	4,65771	476	4,66247	477
2,25	4,69117	480	4,69597	480	4,70077	481	4,70558	481	4,71039	482
2,26	4,73937	485	4,74422	485	4,74907	485	4,75392	486	4,75878	487
2,27	4,78804	490	4,79294	490	4,79784	490	4,80274	491	4,80765	491
2,28	4,83720	494	4,84214	495	4,84709	495	4,85204	495	4,85699	497
2,29	4,88684	499	4,89183	499	4,89682	500	4,90182	501	4,90683	501
2,30	4,93696	504	4,94200	505	4,94705	505	4,95210	505	4,95715	506
2,31	4,98758	509	4,99267	510	4,99777	509	5,00286	511	5,00797	511
2,32	5,03870	514	5,04384	514	5,04898	515	5,05413	516	5,05929	516
2,33	5,09032	519	5,09551	520	5,10071	520	5,10591	520	5,11111	521
2,34	5,14245	525	5,14770	524	5,15294	525	5,15819	526	5,16345	526
2,35	5,19510	529	5,20039	530	5,20569	531	5,21100	530	5,21630	532
2,36	5,24827	534	5,25361	535	5,25896	536	5,26432	536	5,26968	536
2,37	5,30196	539	5,30735	541	5,31276	541	5,31817	541	5,32358	542
2,38	5,35618	545	5,36163	545	5,36708	547	5,37255	546	5,37801	548
2,39	5,41093	551	5,41644	551	5,42195	551	5,42746	553	5,43299	552
2,40	5,46623	556	5,47179	556	5,47735	557	5,48292	558	5,48850	558
2,41	5,52207	562	5,52769	562	5,53331	562	5,53893	563	5,54456	564
2,42	5,57847	567	5,58414	567	5,58981	569	5,59550	568	5,60118	570
2,43	5,63542	573	5,64115	573	5,64688	574	5,65262	574	5,65836	575
2,44	5,69294	578	5,69872	579	5,70451	580	5,71031	580	5,71611	580
2,45	5,75103	584	5,75687	584	5,76271	585	5,76856	586	5,77442	587
2,46	5,80969	590	5,81559	590	5,82149	591	5,82740	592	5,83332	592
2,47	5,86893	596	5,87489	596	5,88085	597	5,88682	597	5,89279	598
2,48	5,92876	602	5,93478	602	5,94080	602	5,94682	604	5,95286	604
2,49	5,98918	608	5,99526	608	6,00134	609	6,00743	609	6,01352	610

Błąd przybliżeń podanych na str. 214 i 215 jest nie większy niż 0,000005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,00000576 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
3,64572	378	3,64950	378	3,65328	379	3,65707	380	3,66087	379	2,00
3,68370	382	3,68752	382	3,69134	383	3,69517	383	3,69900	383	2,01
3,72206	385	3,72591	386	3,72977	387	3,73364	386	3,73750	388	2,02
3,76079	389	3,76468	390	3,76858	390	3,77248	390	3,77638	391	2,03
3,79989	393	3,80382	394	3,80776	393	3,81169	395	3,81564	394	2,04
3,83937	397	3,84334	398	3,84732	397	3,85129	398	3,85527	399	2,05
3,87924	401	3,88325	401	3,88726	402	3,89128	402	3,89530	402	2,06
3,91950	404	3,92354	405	3,92759	406	3,93165	406	3,93571	406	2,07
3,96014	409	3,96423	409	3,96832	409	3,97241	410	3,97651	410	2,08
4,00119	412	4,00531	413	4,00944	414	4,01358	413	4,01771	415	2,09
4,04263	417	4,04680	417	4,05097	417	4,05514	418	4,05932	418	2,10
4,08448	420	4,08868	421	4,09289	422	4,09711	422	4,10133	422	2,11
4,12673	425	4,13098	425	4,13523	426	4,13949	426	4,14375	426	2,12
4,16940	429	4,17369	429	4,17798	430	4,18228	430	4,18658	431	2,13
4,21249	433	4,21682	433	4,22115	434	4,22549	435	4,22984	435	2,14
4,25599	438	4,26037	438	4,26475	438	4,26913	439	4,27352	439	2,15
4,29993	441	4,30434	442	4,30876	443	4,31319	443	4,31762	443	2,16
4,34429	446	4,34875	446	4,35321	447	4,35768	447	4,36215	448	2,17
4,38909	450	4,39359	451	4,39810	451	4,40261	452	4,40713	452	2,18
4,43432	455	4,43887	455	4,44342	456	4,44798	456	4,45254	457	2,19
4,48000	459	4,48459	460	4,48919	460	4,49379	461	4,49840	461	2,20
4,52613	464	4,53077	464	4,53541	464	4,54005	466	4,54471	465	2,21
4,57271	468	4,57739	469	4,58208	469	4,58677	470	4,59147	470	2,22
4,61974	473	4,62447	474	4,62921	474	4,63395	474	4,63869	475	2,23
4,66724	478	4,67202	478	4,67680	478	4,68158	479	4,68637	480	2,24
4,71521	482	4,72003	483	4,72486	483	4,72969	484	4,73453	484	2,25
4,76365	487	4,76852	487	4,77339	488	4,77827	489	4,78316	488	2,26
4,81256	492	4,81748	492	4,82240	493	4,82733	493	4,83226	494	2,27
4,86196	496	4,86692	497	4,87189	498	4,87687	498	4,88185	499	2,28
4,91184	501	4,91685	502	4,92187	503	4,92690	503	4,93193	503	2,29
4,96221	506	4,96727	507	4,97234	508	4,97742	508	4,98250	508	2,30
5,01308	511	5,01819	512	5,02331	513	5,02844	513	5,03357	513	2,31
5,06445	516	5,06961	517	5,07478	518	5,07996	518	5,08514	518	2,32
5,11632	522	5,12154	522	5,12676	523	5,13199	523	5,13722	523	2,33
5,16871	527	5,17398	527	5,17925	528	5,18453	528	5,18981	529	2,34
5,22162	532	5,22694	532	5,23226	533	5,23759	534	5,24293	534	2,35
5,27504	538	5,28042	537	5,28579	539	5,29118	538	5,29656	540	2,36
5,32900	542	5,33442	543	5,33985	544	5,34529	544	5,35073	545	2,37
5,38349	548	5,38897	548	5,39445	549	5,39994	549	5,40543	550	2,38
5,43851	554	5,44405	553	5,44958	555	5,45513	554	5,46067	556	2,39
5,49408	559	5,49967	559	5,50526	560	5,51086	560	5,51646	561	2,40
5,55020	564	5,55584	565	5,56149	566	5,56715	565	5,57280	567	2,41
5,60688	569	5,61257	571	5,61828	571	5,62399	571	5,62970	572	2,42
5,66411	576	5,66987	576	5,67563	576	5,68139	577	5,68716	578	2,43
5,72191	581	5,72772	582	5,73354	582	5,73936	583	5,74519	584	2,44
5,78029	586	5,78615	588	5,79203	588	5,79791	589	5,80380	589	2,45
5,83924	592	5,84516	594	5,85110	594	5,85704	594	5,86298	595	2,46
5,89877	599	5,90476	599	5,91075	600	5,91675	600	5,92275	601	2,47
5,95890	604	5,96494	605	5,97099	606	5,97705	606	5,98311	607	2,48
6,01962	610	6,02572	611	6,03183	612	6,03795	613	6,04408	612	2,49

$\sinh x$

The error of the approximations given on pp. 214 and 215 is not greater than 0,000005 and the error of an approximation obtained by linear interpolation is less than 0,00000576 + the error of rounding off the result.

An example of interpolation is given on p. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
2,50	6,05020	614	6,05634	614	6,06248	615	6,06863	615	6,07478	616
2,51	6,11183	620	6,11803	620	6,12423	621	6,13044	621	6,13665	622
2,52	6,17407	626	6,18033	626	6,18659	627	6,19286	628	6,19914	628
2,53	6,23692	632	6,24324	633	6,24957	633	6,25590	634	6,26224	634
2,54	6,30040	638	6,30678	639	6,31317	640	6,31957	640	6,32597	641
2,55	6,36451	645	6,37096	645	6,37741	646	6,38387	646	6,39033	647
2,56	6,42926	651	6,43577	651	6,44228	652	6,44880	653	6,45533	654
2,57	6,49464	658	6,50122	658	6,50780	659	6,51439	659	6,52098	660
2,58	6,56068	664	6,56732	665	6,57397	665	6,58062	666	6,58728	667
2,59	6,62738	670	6,63408	671	6,64079	672	6,64751	673	6,65424	673
2,60	6,69473	677	6,70150	678	6,70828	679	6,71507	679	6,72186	680
2,61	6,76276	684	6,76960	684	6,77644	686	6,78330	686	6,79016	686
2,62	6,83146	691	6,83837	691	6,84528	692	6,85220	693	6,85913	694
2,63	6,90085	697	6,90782	699	6,91481	699	6,92180	699	6,92879	701
2,64	6,97092	705	6,97797	705	6,98502	706	6,99208	707	6,99915	707
2,65	7,04169	712	7,04881	712	7,05593	713	7,06306	714	7,07020	714
2,66	7,11317	719	7,12036	719	7,12755	720	7,13475	721	7,14196	722
2,67	7,18536	726	7,19262	726	7,19988	727	7,20715	728	7,21443	729
2,68	7,25827	733	7,26560	733	7,27293	735	7,28028	735	7,28763	736
2,69	7,33190	740	7,33930	741	7,34671	742	7,35413	743	7,36156	743
2,70	7,40626	748	7,41374	748	7,42122	750	7,42872	750	7,43622	750
2,71	7,48137	755	7,48892	756	7,49648	757	7,50405	757	7,51162	758
2,72	7,55722	763	7,56485	764	7,57249	764	7,58013	765	7,58778	765
2,73	7,63383	771	7,64154	771	7,64925	772	7,65697	772	7,66469	773
2,74	7,71121	778	7,71899	778	7,72677	780	7,73457	780	7,74237	781
2,75	7,78935	786	7,79721	786	7,80507	788	7,81295	788	7,82083	789
2,76	7,86828	793	7,87621	794	7,88415	796	7,89211	795	7,90006	797
2,77	7,94799	801	7,95600	802	7,96402	803	7,97205	804	7,98009	805
2,78	8,02849	810	8,03659	810	8,04469	811	8,05280	812	8,06092	812
2,79	8,10980	817	8,11797	819	8,12616	819	8,13435	820	8,14255	821
2,80	8,19192	826	8,20018	826	8,20844	827	8,21671	828	8,22499	829
2,81	8,27486	834	8,28320	834	8,29154	836	8,29990	836	8,30826	838
2,82	8,35862	842	8,36704	844	8,37548	843	8,38391	845	8,39236	846
2,83	8,44322	851	8,45173	852	8,46025	852	8,46877	853	8,47730	854
2,84	8,52867	859	8,53726	860	8,54586	861	8,55447	862	8,56309	862
2,85	8,61497	868	8,62365	868	8,63233	870	8,64103	870	8,64973	871
2,86	8,70213	876	8,71089	878	8,71967	878	8,72845	879	8,73724	880
2,87	8,79016	885	8,79901	886	8,80787	887	8,81674	888	8,82562	888
2,88	8,87907	894	8,88801	895	8,89696	895	8,90591	897	8,91488	898
2,89	8,96887	903	8,97790	903	8,98693	905	8,99598	906	9,00504	906
2,90	9,05956	912	9,06868	913	9,07781	914	9,08695	914	9,09609	916
2,91	9,15116	921	9,16037	922	9,16959	923	9,17882	924	9,18806	924
2,92	9,24368	930	9,25298	931	9,26229	932	9,27161	933	9,28094	934
2,93	9,33712	939	9,34651	941	9,35592	941	9,36533	942	9,37475	944
2,94	9,43149	949	9,44098	950	9,45048	951	9,45999	951	9,46950	953
2,95	9,52681	958	9,53639	959	9,54598	961	9,55559	961	9,56520	962
2,96	9,62308	968	9,63276	969	9,64245	969	9,65214	971	9,66185	972
2,97	9,72031	977	9,73008	979	9,73987	980	9,74967	980	9,75947	982
2,98	9,81851	988	9,82839	988	9,83827	989	9,84816	991	9,85807	991
2,99	9,91770	997	9,92767	998	9,93765	1000				
2,99							9,9476	100	9,9576	101

Błąd przybliżeń podanych na str. 216 i 217 jest dla $2,500 \leq x < 2,993$ nie większy niż 0,000005, a dla $2,993 \leq x < 3,000$ nie większy niż 0,00005. Błąd przybliżenia otrzymanego przez interpolację liniową jest dla $2,500 < x < 2,993$ mniejszy niż 0,00000625 + błąd zaokrąglenia wyniku, a dla $2,993 < x < 3,000$ mniejszy niż 0,0000513 + błąd zaokrąglenia wyniku.

Przykład interpolacji na str. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
6,08094	617	6,08711	617	6,09328	618	6,09946	618	6,10564	619	2,50
6,14287	623	6,14910	623	6,15533	624	6,16157	625	6,16782	625	2,51
6,20542	629	6,21171	629	6,21800	630	6,22430	631	6,23061	631	2,52
6,26858	636	6,27494	635	6,28129	637	6,28766	637	6,29403	637	2,53
6,33238	641	6,33879	642	6,34521	643	6,35164	643	6,35807	644	2,54
6,39680	648	6,40328	649	6,40977	649	6,41626	649	6,42275	651	2,55
6,46187	654	6,46841	655	6,47496	656	6,48152	656	6,48808	656	2,56
6,52758	661	6,53419	661	6,54080	662	6,54742	663	6,55405	663	2,57
6,59395	667	6,60062	668	6,60730	668	6,61398	670	6,62068	670	2,58
6,66097	674	6,66771	675	6,67446	675	6,68121	676	6,68797	676	2,59
6,72866	681	6,73547	681	6,74228	682	6,74910	683	6,75593	683	2,60
6,79702	688	6,80390	688	6,81078	689	6,81767	689	6,82456	690	2,61
6,86607	694	6,87301	695	6,87996	695	6,88691	697	6,89388	697	2,62
6,93580	701	6,94281	702	6,94983	702	6,95685	703	6,96388	704	2,63
7,00622	708	7,01330	709	7,02039	709	7,02748	710	7,03458	711	2,64
7,07734	715	7,08449	716	7,09165	717	7,09882	717	7,10599	718	2,65
7,14918	722	7,15640	723	7,16363	723	7,17086	725	7,17811	725	2,66
7,22172	730	7,22902	730	7,23632	731	7,24363	731	7,25094	733	2,67
7,29499	737	7,30236	737	7,30973	738	7,31711	739	7,32450	740	2,68
7,36899	744	7,37643	745	7,38388	745	7,39133	746	7,39879	747	2,69
7,44372	752	7,45124	752	7,45876	753	7,46629	754	7,47383	754	2,70
7,51920	759	7,52679	760	7,53439	760	7,54199	761	7,54960	762	2,71
7,59543	767	7,60310	767	7,61077	768	7,61845	769	7,62614	769	2,72
7,67242	775	7,68017	774	7,68791	776	7,69567	777	7,70344	777	2,73
7,75018	782	7,75800	783	7,76583	783	7,77366	784	7,78150	785	2,74
7,82872	789	7,83661	791	7,84452	791	7,85243	792	7,86035	793	2,75
7,90803	798	7,91601	798	7,92399	799	7,93198	800	7,93998	801	2,76
7,98814	805	7,99619	807	8,00426	807	8,01233	807	8,02040	809	2,77
8,06904	814	8,07718	814	8,08532	815	8,09347	816	8,10163	817	2,78
8,15076	821	8,15897	823	8,16720	823	8,17543	824	8,18367	825	2,79
8,23328	830	8,24158	831	8,24989	831	8,25820	833	8,26653	833	2,80
8,31664	838	8,32502	839	8,33341	839	8,34180	841	8,35021	841	2,81
8,40082	846	8,40928	848	8,41776	848	8,42624	849	8,43473	849	2,82
8,48584	855	8,49439	856	8,50295	856	8,51151	858	8,52009	858	2,83
8,57171	864	8,58035	864	8,58899	865	8,59764	866	8,60630	867	2,84
8,65844	872	8,66716	873	8,67589	874	8,68463	874	8,69337	876	2,85
8,74604	880	8,75484	882	8,76366	882	8,77248	884	8,78132	884	2,86
8,83450	890	8,84340	890	8,85230	892	8,86122	892	8,87014	893	2,87
8,92386	898	8,93284	899	8,94183	901	8,95084	901	8,95985	902	2,88
9,01410	908	9,02318	908	9,03226	909	9,04135	910	9,05045	911	2,89
9,10525	916	9,11441	918	9,12359	918	9,13277	919	9,14196	920	2,90
9,19730	926	9,20656	927	9,21583	927	9,22510	928	9,23438	930	2,91
9,29028	935	9,29963	936	9,30899	936	9,31835	938	9,32773	939	2,92
9,38419	944	9,39363	945	9,40308	946	9,41254	947	9,42201	948	2,93
9,47903	954	9,48857	954	9,49811	956	9,50767	956	9,51723	958	2,94
9,57482	963	9,58445	964	9,59409	966	9,60375	966	9,61341	967	2,95
9,67157	973	9,68130	974	9,69104	974	9,70078	976	9,71054	977	2,96
9,76929	982	9,77911	984	9,78895	984	9,79879	986	9,80865	986	2,97
9,86798	992	9,87790	994	9,88784	994	9,89778	995	9,90773	997	2,98
9,9677	100	9,9777	100	9,9877	101	9,9978	100	10,0078	101	2,99

$\sinh x$

The error of the approximations given on pp. 216 and 217 is not greater than 0,000005 for $2,500 \leq x < 2,993$ and not greater than 0,00005 for $2,993 \leq x < 3,000$. The error of an approximation obtained by linear interpolation for $2,500 < x < 2,993$ is less than 0,00000625 + the error of rounding off the result and for $2,993 < x < 3,000$ less than 0,0000513 + the error of rounding off the result.

An example of interpolation is given on p. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
3,00	10,0179	100	10,0279	101	10,0380	101	10,0481	101	10,0582	101
3,01	10,1191	101	10,1292	102	10,1394	102	10,1496	102	10,1598	102
3,02	10,2212	103	10,2315	103	10,2418	103	10,2521	103	10,2624	103
3,03	10,3245	103	10,3348	104	10,3452	104	10,3556	104	10,3660	105
3,04	10,4287	105	10,4392	105	10,4497	105	10,4602	105	10,4707	105
3,05	10,5340	106	10,5446	106	10,5552	106	10,5658	106	10,5764	106
3,06	10,6403	107	10,6510	107	10,6617	107	10,6724	108	10,6832	107
3,07	10,7477	108	10,7585	109	10,7694	108	10,7802	108	10,7910	108
3,08	10,8562	109	10,8671	109	10,8780	110	10,8890	109	10,8999	110
3,09	10,9658	110	10,9768	110	10,9878	111	10,9989	110	11,0099	111
3,10	11,0765	111	11,0876	111	11,0987	112	11,1099	111	11,1210	112
3,11	11,1882	113	11,1995	112	11,2107	113	11,2220	112	11,2332	113
3,12	11,3011	114	11,3125	113	11,3238	114	11,3352	114	11,3466	114
3,13	11,4151	115	11,4266	115	11,4381	115	11,4496	115	11,4611	115
3,14	11,5303	116	11,5419	116	11,5535	116	11,5651	116	11,5767	116
3,15	11,6466	117	11,6583	117	11,6700	117	11,6817	118	11,6935	117
3,16	11,7641	118	11,7759	118	11,7877	119	11,7996	118	11,8114	119
3,17	11,8827	120	11,8947	119	11,9066	120	11,9186	119	11,9305	120
3,18	12,0026	120	12,0146	121	12,0267	121	12,0388	121	12,0509	121
3,19	12,1236	122	12,1358	122	12,1480	122	12,1602	122	12,1724	122
3,20	12,2459	123	12,2582	123	12,2705	123	12,2828	123	12,2951	124
3,21	12,3694	124	12,3818	124	12,3942	124	12,4066	125	12,4191	125
3,22	12,4941	125	12,5066	126	12,5192	125	12,5317	126	12,5443	126
3,23	12,6200	127	12,6327	127	12,6454	127	12,6581	127	12,6708	127
3,24	12,7473	128	12,7601	128	12,7729	128	12,7857	128	12,7985	129
3,25	12,8758	129	12,8887	129	12,9016	130	12,9146	129	12,9275	130
3,26	13,0056	130	13,0186	131	13,0317	131	13,0448	131	13,0579	131
3,27	13,1367	131	13,1498	132	13,1630	132	13,1762	133	13,1895	132
3,28	13,2691	133	13,2824	133	13,2957	134	13,3091	133	13,3224	134
3,29	13,4028	135	13,4163	134	13,4297	135	13,4432	135	13,4567	135
3,30	13,5379	136	13,5515	136	13,5651	136	13,5787	136	13,5923	136
3,31	13,6743	137	13,6880	138	13,7018	137	13,7155	138	13,7293	137
3,32	13,8121	139	13,8260	138	13,8398	139	13,8537	139	13,8676	139
3,33	13,9513	140	13,9653	140	13,9793	140	13,9933	140	14,0073	141
3,34	14,0918	142	14,1060	141	14,1201	142	14,1343	142	14,1485	142
3,35	14,2338	143	14,2481	143	14,2624	143	14,2767	143	14,2910	143
3,36	14,3772	144	14,3916	145	14,4061	144	14,4205	145	14,4350	145
3,37	14,5221	145	14,5366	146	14,5512	146	14,5658	146	14,5804	146
3,38	14,6684	147	14,6831	147	14,6978	147	14,7125	148	14,7273	148
3,39	14,8161	149	14,8310	149	14,8459	148	14,8607	149	14,8756	150
3,40	14,9654	150	14,9804	150	14,9954	150	15,0104	151	15,0255	150
3,41	15,1161	152	15,1313	151	15,1464	152	15,1616	152	15,1768	152
3,42	15,2684	153	15,2837	153	15,2990	153	15,3143	154	15,3297	153
3,43	15,4221	155	15,4376	155	15,4531	155	15,4686	155	15,4841	155
3,44	15,5774	157	15,5931	156	15,6087	156	15,6243	157	15,6400	157
3,45	15,7343	158	15,7501	158	15,7659	158	15,7817	158	15,7975	159
3,46	15,8928	159	15,9087	160	15,9247	159	15,9406	160	15,9566	160
3,47	16,0528	161	16,0689	161	16,0850	161	16,1011	162	16,1173	161
3,48	16,2145	162	16,2307	163	16,2470	163	16,2633	163	16,2796	163
3,49	16,3777	164	16,3941	165	16,4106	164	16,4270	165	16,4435	165

Błąd przybliżeń podanych na str. 218 i 219 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. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
10,0683	102	10,0785	101	10,0886	101	10,0987	102	10,1089	102	3,00
10,1700	102	10,1802	103	10,1905	102	10,2007	103	10,2110	102	3,01
10,2727	103	10,2830	104	10,2934	103	10,3037	104	10,3141	104	3,02
10,3765	104	10,3869	104	10,3973	105	10,4078	104	10,4182	105	3,03
10,4812	106	10,4918	105	10,5023	106	10,5129	105	10,5234	106	3,04
10,5870	107	10,5977	106	10,6083	107	10,6190	107	10,6297	106	3,05
10,6939	107	10,7046	108	10,7154	108	10,7262	108	10,7370	107	3,06
10,8018	109	10,8127	109	10,8236	108	10,8344	109	10,8453	109	3,07
10,9109	109	10,9218	110	10,9328	110	10,9438	110	10,9548	110	3,08
11,0210	111	11,0321	110	11,0431	111	11,0542	111	11,0653	112	3,09
11,1322	112	11,1434	112	11,1546	112	11,1658	112	11,1770	112	3,10
11,2445	113	11,2558	113	11,2671	113	11,2784	114	11,2898	113	3,11
11,3580	114	11,3694	114	11,3808	114	11,3922	115	11,4037	114	3,12
11,4726	115	11,4841	115	11,4956	116	11,5072	115	11,5178	116	3,13
11,5883	116	11,5999	117	11,6116	117	11,6233	116	11,6349	117	3,14
11,7052	118	11,7170	117	11,7287	118	11,7405	118	11,7523	118	3,15
11,8233	118	11,8351	119	11,8470	119	11,8589	119	11,8708	119	3,16
11,9425	120	11,9545	120	11,9665	120	11,9785	120	11,9905	121	3,17
12,0630	121	12,0751	121	12,0872	121	12,0993	122	12,1115	121	3,18
12,1846	122	12,1968	123	12,2091	122	12,2213	123	12,2336	123	3,19
12,3075	123	12,3198	124	12,3322	124	12,3446	124	12,3570	124	3,20
12,4316	124	12,4440	125	12,4565	125	12,4690	126	12,4816	125	3,21
12,5569	126	12,5695	126	12,5821	127	12,5948	126	12,6074	126	3,22
12,6835	127	12,6962	128	12,7090	127	12,7217	128	12,7345	128	3,23
12,8114	128	12,8242	129	12,8371	129	12,8500	129	12,8629	129	3,24
12,9405	130	12,9535	130	12,9665	130	12,9795	130	12,9925	131	3,25
13,0710	131	13,0841	131	13,0972	131	13,1103	132	13,1235	132	3,26
13,2027	133	13,2160	132	13,2292	133	13,2425	133	13,2558	133	3,27
13,3358	134	13,3492	133	13,3625	135	13,3760	134	13,3894	134	3,28
13,4702	135	13,4837	135	13,4972	136	13,5108	135	13,5243	136	3,29
13,6059	137	13,6196	136	13,6332	137	13,6469	137	13,6606	137	3,30
13,7430	138	13,7568	138	13,7706	138	13,7844	139	13,7983	138	3,31
13,8815	139	13,8954	140	13,9094	139	13,9233	140	13,9373	140	3,32
14,0214	140	14,0354	141	14,0495	141	14,0636	141	14,0777	141	3,33
14,1627	142	14,1769	142	14,1911	142	14,2053	143	14,2196	142	3,34
14,3053	144	14,3197	144	14,3341	143	14,3484	144	14,3628	144	3,35
14,4495	145	14,4640	145	14,4785	145	14,4930	145	14,5075	146	3,36
14,5950	147	14,6097	146	14,6243	147	14,6390	147	14,6537	147	3,37
14,7421	147	14,7568	148	14,7716	149	14,7865	148	14,8013	148	3,38
14,8906	149	14,9055	149	14,9204	150	14,9354	150	14,9504	150	3,39
15,0405	151	15,0556	151	15,0707	151	15,0858	152	15,1010	151	3,40
15,1920	153	15,2073	152	15,2225	153	15,2378	153	15,2531	153	3,41
15,3450	154	15,3604	154	15,3758	154	15,3912	155	15,4067	154	3,42
15,4996	155	15,5151	156	15,5307	156	15,5463	155	15,5618	156	3,43
15,6557	157	15,6714	157	15,6871	157	15,7028	158	15,7186	157	3,44
15,8134	158	15,8292	159	15,8451	159	15,8610	159	15,8769	159	3,45
15,9726	160	15,9886	160	16,0046	161	16,0207	160	16,0367	161	3,46
16,1334	162	16,1496	162	16,1658	162	16,1820	162	16,1982	163	3,47
16,2959	163	16,3122	164	16,3286	163	16,3449	164	16,3613	164	3,48
16,4600	165	16,4765	165	16,4930	165	16,5095	166	16,5261	165	3,49

$\sinh x$

The error of the approximations given on pp. 218 and 219 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. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
3,50	16,5426	166	16,5592	166	16,5758	166	16,5924	167	16,6091	166
3,51	16,7092	167	16,7259	168	16,7427	168	16,7595	168	16,7763	168
3,52	16,8774	169	16,8943	170	16,9113	169	16,9282	170	16,9452	170
3,53	17,0473	171	17,0644	171	17,0815	171	17,0986	172	17,1158	171
3,54	17,2190	172	17,2362	173	17,2535	173	17,2708	173	17,2881	173
3,55	17,3923	174	17,4097	175	17,4272	174	17,4446	175	17,4621	175
3,56	17,5674	176	17,5850	176	17,6026	176	17,6202	177	17,6379	177
3,57	17,7442	178	17,7620	178	17,7798	178	17,7976	179	17,8155	178
3,58	17,9228	180	17,9408	180	17,9588	180	17,9768	180	17,9948	180
3,59	18,1032	182	18,1214	181	18,1395	182	18,1577	182	18,1759	182
3,60	18,2855	183	18,3038	183	18,3221	184	18,3405	184	18,3589	183
3,61	18,4695	185	18,4880	185	18,5065	186	18,5251	185	18,5436	186
3,62	18,6554	187	18,6741	187	18,6928	187	18,7115	188	18,7303	187
3,63	18,8432	188	18,8620	189	18,8809	189	18,8998	190	18,9188	189
3,64	19,0328	191	19,0519	190	19,0709	192	19,0901	191	19,1092	191
3,65	19,2243	193	19,2436	193	19,2629	193	19,2822	193	19,3015	193
3,66	19,4178	195	19,4373	194	19,4567	195	19,4762	195	19,4957	196
3,67	19,6132	197	19,6329	196	19,6525	197	19,6722	197	19,6919	198
3,68	19,8106	198	19,8304	199	19,8503	199	19,8702	199	19,8901	199
3,69	20,0099	201	20,0300	200	20,0500	201	20,0701	201	20,0902	202
3,70	20,2113	202	20,2315	203	20,2518	203	20,2721	203	20,2924	203
3,71	20,4147	204	20,4351	205	20,4556	205	20,4761	205	20,4966	205
3,72	20,6201	206	20,6407	207	20,6614	207	20,6821	207	20,7028	208
3,73	20,8276	208	20,8484	209	20,8693	209	20,8902	209	20,9111	210
3,74	21,0371	211	21,0582	211	21,0793	211	21,1004	211	21,1215	212
3,75	21,2488	213	21,2701	213	21,2914	213	21,3127	213	21,3340	214
3,76	21,4626	215	21,4841	215	21,5056	215	21,5271	216	21,5487	216
3,77	21,6785	217	21,7002	218	21,7220	217	21,7437	218	21,7655	218
3,78	21,8966	219	21,9185	220	21,9405	220	21,9625	220	21,9845	220
3,79	22,1169	222	22,1391	221	22,1612	222	22,1834	222	22,2056	223
3,80	22,3394	224	22,3618	224	22,3842	224	22,4066	224	22,4290	225
3,81	22,5641	226	22,5867	227	22,6094	226	22,6320	227	22,6547	227
3,82	22,7911	229	22,8140	228	22,8368	229	22,8597	229	22,8826	229
3,83	23,0204	231	23,0435	230	23,0665	231	23,0896	232	23,1128	231
3,84	23,2520	233	23,2753	233	23,2986	233	23,3219	234	23,3453	233
3,85	23,4859	235	23,5094	236	23,5330	235	23,5565	236	23,5801	236
3,86	23,7221	238	23,7459	238	23,7697	238	23,7935	238	23,8173	239
3,87	23,9608	240	23,9848	240	24,0088	240	24,0328	241	24,0569	241
3,88	24,2018	242	24,2260	243	24,2503	243	24,2746	243	24,2989	243
3,89	24,4452	245	24,4697	245	24,4942	245	24,5187	246	24,5433	246
3,90	24,6911	247	24,7158	248	24,7406	247	24,7653	248	24,7901	249
3,91	24,9395	249	24,9644	250	24,9894	250	25,0144	251	25,0395	251
3,92	25,1903	252	25,2155	253	25,2408	252	25,2660	253	25,2913	254
3,93	25,4437	254	25,4691	255	25,4946	256	25,5202	255	25,5457	256
3,94	25,6996	257	25,7253	258	25,7511	257	25,7768	259	25,8027	258
3,95	25,9581	259	25,9840	261	26,0101	260	26,0361	261	26,0622	261
3,96	26,2191	263	26,2454	263	26,2717	263	26,2980	263	26,3243	264
3,97	26,4828	265	26,5093	266	26,5359	266	26,5625	265	26,5890	267
3,98	26,7492	268	26,7760	268	26,8028	268	26,8296	269	26,8565	268
3,99	27,0182	270	27,0452	271	27,0723	271	27,0994	272	27,1266	271

Błąd przybliżeń podanych na str. 220 i 221 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. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
16,6257	167	16,6424	166	16,6590	167	16,6757	168	16,6925	167	3,50
16,7931	168	16,8099	169	16,8268	168	16,8436	169	16,8605	169	3,51
16,9622	170	16,9792	170	16,9962	170	17,0132	171	17,0303	170	3,52
17,1329	172	17,1501	172	17,1673	172	17,1845	172	17,2017	173	3,53
17,3054	174	17,3228	173	17,3401	174	17,3575	174	17,3749	174	3,54
17,4796	175	17,4971	176	17,5147	175	17,5322	176	17,5498	176	3,55
17,6556	177	17,6733	177	17,6910	177	17,7087	178	17,7265	177	3,56
17,8333	179	17,8512	179	17,8691	179	17,8870	179	17,9049	179	3,57
18,0128	181	18,0309	180	18,0489	181	18,0670	181	18,0851	181	3,58
18,1941	183	18,2124	182	18,2306	183	18,2489	183	18,2672	183	3,59
18,3772	185	18,3957	184	18,4141	184	18,4325	185	18,4510	185	3,60
18,5622	186	18,5808	186	18,5994	187	18,6181	186	18,6367	187	3,61
18,7490	188	18,7678	188	18,7866	188	18,8054	189	18,8243	189	3,62
18,9377	190	18,9567	190	18,9757	190	18,9947	190	19,0137	191	3,63
19,1283	192	19,1475	192	19,1667	192	19,1859	192	19,2051	192	3,64
19,3208	194	19,3402	194	19,3596	194	19,3790	194	19,3984	194	3,65
19,5153	195	19,5348	196	19,5544	196	19,5740	196	19,5936	196	3,66
19,7117	197	19,7314	198	19,7512	198	19,7710	198	19,7908	198	3,67
19,9100	200	19,9300	199	19,9499	200	19,9699	200	19,9899	200	3,68
20,1104	201	20,1305	202	20,1507	202	20,1709	202	20,1911	202	3,69
20,3127	204	20,3331	203	20,3534	204	20,3738	204	20,3942	205	3,70
20,5171	206	20,5377	205	20,5582	206	20,5788	206	20,5994	207	3,71
20,7236	207	20,7443	208	20,7651	208	20,7859	208	20,8067	209	3,72
20,9321	209	20,9530	210	20,9740	210	20,9950	211	21,0161	210	3,73
21,1427	212	21,1639	212	21,1851	212	21,2063	212	21,2275	213	3,74
21,3554	214	21,3768	214	21,3982	214	21,4196	215	21,4411	215	3,75
21,5703	216	21,5919	216	21,6135	216	21,6351	217	21,6568	217	3,76
21,7873	218	21,8091	218	21,8309	219	21,8528	219	21,8747	219	3,77
22,0065	220	22,0285	221	22,0506	221	22,0727	221	22,0948	221	3,78
22,2279	222	22,2501	223	22,2724	223	22,2947	224	22,3171	223	3,79
22,4515	225	22,4740	225	22,4965	225	22,5190	226	22,5416	225	3,80
22,6774	227	22,7001	227	22,7228	228	22,7456	227	22,7683	228	3,81
22,9055	229	22,9284	230	22,9514	230	22,9744	230	22,9974	230	3,82
23,1359	232	23,1591	232	23,1823	232	23,2055	232	23,2287	233	3,83
23,3686	235	23,3921	234	23,4155	234	23,4389	235	23,4624	235	3,84
23,6037	237	23,6274	236	23,6510	237	23,6747	237	23,6984	237	3,85
23,8412	238	23,8650	239	23,8889	239	23,9128	240	23,9368	240	3,86
24,0810	241	24,1051	241	24,1292	242	24,1534	242	24,1776	242	3,87
24,3232	244	24,3476	243	24,3719	244	24,3963	245	24,4208	244	3,88
24,5679	246	24,5925	246	24,6171	246	24,6417	247	24,6664	247	3,89
24,8150	248	24,8398	249	24,8647	249	24,8896	249	24,9145	250	3,90
25,0646	251	25,0897	251	25,1148	251	25,1399	252	25,1651	252	3,91
25,3167	253	25,3420	254	25,3674	254	25,3928	254	25,4182	255	3,92
25,5713	256	25,5969	256	25,6225	257	25,6482	257	25,6739	257	3,93
25,8285	259	25,8544	258	25,8802	260	25,9062	259	25,9321	260	3,94
26,0883	261	26,1144	261	26,1405	262	26,1667	262	26,1929	262	3,95
26,3507	263	26,3770	264	26,4034	265	26,4299	264	26,4563	265	3,96
26,6157	266	26,6423	267	26,6690	267	26,6957	267	26,7224	268	3,97
26,8833	270	26,9103	269	26,9372	270	26,9642	270	26,9912	270	3,98
27,1537	272	27,1809	272	27,2081	273	27,2354	272	27,2626	273	3,99

$\sinh x$

The error of the approximations given on pp. 220 and 221 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. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
4,00	27,2899	273	27,3172	274	27,3446	274	27,3720	274	27,3994	274
4,01	27,5644	276	27,5920	276	27,6196	276	27,6472	277	27,6749	277
4,02	27,8416	278	27,8694	280	27,8974	279	27,9253	279	27,9532	280
4,03	28,1216	281	28,1497	282	28,1779	282	28,2061	283	28,2344	282
4,04	28,4044	284	28,4328	285	28,4613	285	28,4898	285	28,5183	285
4,05	28,6900	287	28,7187	288	28,7475	288	28,7763	288	28,8051	288
4,06	28,9785	290	29,0075	291	29,0366	290	29,0656	291	29,0947	292
4,07	29,2699	293	29,2992	294	29,3286	293	29,3579	294	29,3873	294
4,08	29,5643	296	29,5939	296	29,6235	297	29,6532	296	29,6828	298
4,09	29,8616	299	29,8915	299	29,9214	299	29,9513	300	29,9813	300
4,10	30,1619	302	30,1921	302	30,2223	302	30,2525	303	30,2828	303
4,11	30,4652	305	30,4957	305	30,5262	305	30,5567	306	30,5873	306
4,12	30,7715	308	30,8023	308	30,8331	309	30,8640	309	30,8949	309
4,13	31,0809	311	31,1120	312	31,1432	312	31,1744	312	31,2056	312
4,14	31,3934	315	31,4249	314	31,4563	315	31,4878	315	31,5193	316
4,15	31,7091	318	31,7409	317	31,7726	318	31,8044	319	31,8363	318
4,16	32,0280	320	32,0600	321	32,0921	321	32,1242	322	32,1564	322
4,17	32,3500	324	32,3824	324	32,4148	324	32,4472	325	32,4797	325
4,18	32,6753	327	32,7080	327	32,7407	328	32,7735	328	32,8063	328
4,19	33,0038	331	33,0369	330	33,0699	331	33,1030	332	33,1362	331
4,20	33,3357	333	33,3690	334	33,4024	336	33,4359	334	33,4693	335
4,21	33,6708	337	33,7045	338	33,7383	338	33,7721	338	33,8059	338
4,22	34,0094	340	34,0434	341	34,0775	341	34,1116	342	34,1458	341
4,23	34,3513	344	34,3857	344	34,4201	345	34,4546	345	34,4891	345
4,24	34,6967	348	34,7315	347	34,7662	348	34,8010	348	34,8358	349
4,25	35,0456	351	35,0807	351	35,1158	351	35,1509	352	35,1861	352
4,26	35,3979	355	35,4334	354	35,4688	355	35,5043	356	35,5399	355
4,27	35,7538	358	35,7896	358	35,8254	359	35,8613	359	35,8972	359
4,28	36,1133	361	36,1494	362	36,1856	362	36,2218	363	36,2581	363
4,29	36,4764	365	36,5129	365	36,5494	366	36,5860	366	36,6226	367
4,30	36,8431	369	36,8800	369	36,9169	369	36,9538	370	36,9908	371
4,31	37,2135	373	37,2508	373	37,2881	373	37,3254	373	37,3627	374
4,32	37,5877	376	37,6253	376	37,6629	377	37,7006	378	37,7384	377
4,33	37,9656	380	38,0036	380	38,0416	381	38,0797	381	38,1178	381
4,34	38,3473	383	38,3856	384	38,4240	385	38,4625	385	38,5010	385
4,35	38,7328	387	38,7715	388	38,8103	389	38,8492	389	38,8881	389
4,36	39,1222	391	39,1613	392	39,2005	393	39,2398	392	39,2790	393
4,37	39,5155	395	39,5550	396	39,5946	397	39,6343	396	39,6739	397
4,38	39,9128	399	39,9527	400	39,9927	400	40,0327	401	40,0728	401
4,39	40,3140	404	40,3544	403	40,3947	405	40,4352	404	40,4756	405
4,40	40,7193	407	40,7600	408	40,8008	409	40,8417	408	40,8825	410
4,41	41,1287	411	41,1698	412	41,2110	413	41,2523	412	41,2935	414
4,42	41,5421	416	41,5837	416	41,6253	417	41,6670	417	41,7087	417
4,43	41,9598	419	42,0017	421	42,0438	421	42,0859	421	42,1280	421
4,44	42,3816	424	42,4240	424	42,4664	425	42,5089	426	42,5515	426
4,45	42,8076	429	42,8505	429	42,8934	429	42,9363	430	42,9793	430
4,46	43,2380	432	43,2812	434	43,3246	433	43,3679	434	43,4113	435
4,47	43,6726	437	43,7163	438	43,7601	438	43,8039	438	43,8477	439
4,48	44,1117	441	44,1558	442	44,2000	442	44,2442	443	44,2885	443
4,49	44,5551	446	44,5997	446	44,6443	447	44,6890	447	44,7337	448

Błąd przybliżeń podanych na str. 222 i 223 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. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
27,4268	275	27,4543	274	27,4817	276	27,5093	275	27,5368	276	4,00
27,7026	278	27,7304	277	27,7581	278	27,7859	278	27,8137	279	4,01
27,9812	280	28,0092	281	28,0373	280	28,0653	281	28,0934	282	4,02
28,2626	283	28,2909	283	28,3192	284	28,3476	284	28,3760	284	4,03
28,5468	286	28,5754	286	28,6040	287	28,6327	286	28,6613	287	4,04
28,8339	289	28,8628	289	28,8917	289	28,9206	289	28,9495	290	4,05
29,1239	291	29,1530	292	29,1822	292	29,2114	293	29,2407	292	4,06
29,4167	295	29,4462	295	29,4757	295	29,5052	295	29,5347	296	4,07
29,7126	297	29,7423	298	29,7721	298	29,8019	298	29,8317	299	4,08
30,0113	301	30,0414	301	30,0715	301	30,1016	301	30,1317	302	4,09
30,3131	304	30,3435	303	30,3738	305	30,4043	304	30,4347	305	4,10
30,6179	307	30,6486	307	30,6793	307	30,7100	307	30,7407	308	4,11
30,9258	310	30,9568	310	30,9878	310	31,0188	310	31,0498	311	4,12
31,2368	313	31,2681	313	31,2994	313	31,3307	314	31,3621	313	4,13
31,5509	316	31,5825	316	31,6141	316	31,6457	317	31,6774	317	4,14
31,8681	319	31,9000	320	31,9320	319	31,9639	320	31,9959	321	4,15
32,1886	322	32,2208	322	32,2530	323	32,2853	324	32,3177	323	4,16
32,5122	326	32,5448	326	32,5774	326	32,6100	326	32,6426	327	4,17
32,8391	329	32,8720	329	32,9049	330	32,9379	329	32,9708	330	4,18
33,1693	332	33,2025	333	33,2358	332	33,2690	333	33,3023	334	4,19
33,5028	336	33,5364	335	33,5699	336	33,6035	337	33,6372	336	4,20
33,8397	339	33,8736	339	33,9075	339	33,9414	340	33,9754	340	4,21
34,1799	343	34,2142	342	34,2484	343	34,2827	343	34,3170	343	4,22
34,5236	346	34,5582	345	34,5927	347	34,6274	346	34,6620	347	4,23
34,8707	349	34,9056	350	34,9406	349	34,9755	350	35,0105	351	4,24
35,2213	353	35,2566	353	35,2919	353	35,3272	353	35,3625	354	4,25
35,5754	356	35,6110	357	35,6467	357	35,6824	357	35,7181	357	4,26
35,9331	360	35,9691	360	36,0051	360	36,0411	361	36,0772	361	4,27
36,2944	363	36,3307	364	36,3671	364	36,4035	364	36,4399	365	4,28
36,6593	367	36,6960	367	36,7327	368	36,7695	368	36,8063	368	4,29
37,0279	370	37,0649	371	37,1020	371	37,1391	372	37,1763	372	4,30
37,4001	375	37,4376	374	37,4750	375	37,5125	376	37,5501	376	4,31
37,7761	378	37,8139	379	37,8518	379	37,8897	379	37,9276	380	4,32
38,1559	382	38,1941	382	38,2323	383	38,2706	383	38,3089	384	4,33
38,5395	386	38,5781	386	38,6167	387	38,6554	387	38,6941	387	4,34
38,9270	390	38,9660	389	39,0049	391	39,0440	391	39,0831	391	4,35
39,3183	394	39,3577	394	39,3971	394	39,4365	395	39,4760	395	4,36
39,7136	398	39,7534	398	39,7932	398	39,8330	398	39,8728	400	4,37
40,1129	401	40,1530	402	40,1932	402	40,2334	403	40,2737	403	4,38
40,5161	406	40,5567	406	40,5973	406	40,6379	407	40,6786	407	4,39
40,9235	409	40,9644	410	41,0054	411	41,0465	410	41,0875	412	4,40
41,3349	413	41,3762	414	41,4176	415	41,4591	415	41,5006	415	4,41
41,7504	418	41,7922	418	41,8340	419	41,8759	419	41,9178	420	4,42
42,1701	422	42,2123	423	42,2546	423	42,2969	423	42,3392	424	4,43
42,5941	426	42,6367	427	42,6794	427	42,7221	427	42,7648	428	4,44
43,0223	430	43,0653	431	43,1084	432	43,1516	431	43,1947	433	4,45
43,4548	435	43,4983	435	43,5418	436	43,5854	436	43,6290	436	4,46
43,8916	439	43,9355	440	43,9795	440	44,0235	441	44,0676	441	4,47
44,3328	444	44,3772	444	44,4216	445	44,4661	445	44,5106	445	4,48
44,7785	448	44,8233	449	44,8682	449	44,9131	449	44,9580	450	4,49

$\sinh x$

The error of the approximations given on pp. 222 and 223 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. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
4,50	45,0030	450	45,0480	451	45,0931	452	45,1383	451	45,1834	452
4,51	45,4554	455	45,5009	455	45,5464	456	45,5920	456	45,6376	457
4,52	45,9124	459	45,9583	460	46,0043	460	46,0503	461	46,0964	461
4,53	46,3739	464	46,4203	465	46,4668	465	46,5133	465	46,5598	466
4,54	46,8401	468	46,8869	470	46,9339	469	46,9808	470	47,0278	471
4,55	47,3109	474	47,3583	474	47,4057	474	47,4531	475	47,5006	475
4,56	47,7865	478	47,8343	479	47,8822	479	47,9301	480	47,9781	480
4,57	48,2669	483	48,3152	483	48,3635	484	48,4119	485	48,4604	485
4,58	48,7521	488	48,8009	488	48,8497	489	48,8986	489	48,9475	490
4,59	49,2421	493	49,2914	493	49,3407	494	49,3901	494	49,4395	495
4,60	49,7371	498	49,7869	498	49,8367	499	49,8866	499	49,9365	500
4,61	50,2371	503	50,2874	503	50,3377	504	50,3881	504	50,4385	505
4,62	50,7421	508	50,7929	508	50,8437	509	50,8946	509	50,9455	510
4,63	51,2522	512	51,3034	514	51,3548	514	51,4062	514	51,4576	515
4,64	51,7673	518	51,8191	519	51,8710	519	51,9229	520	51,9749	520
4,65	52,2877	523	52,3400	524	52,3924	524	52,4448	525	52,4973	526
4,66	52,8133	529	52,8662	529	52,9191	529	52,9720	530	53,0250	531
4,67	53,3442	534	53,3976	534	53,4510	535	53,5045	535	53,5580	536
4,68	53,8804	539	53,9343	540	53,9883	540	54,0423	541	54,0964	541
4,69	54,4220	545	54,4765	545	54,5310	545	54,5855	547	54,6402	546
4,70	54,9690	550	55,0240	551	55,0791	551	55,1342	552	55,1894	552
4,71	55,5216	555	55,5771	556	55,6327	557	55,6884	557	55,7441	558
4,72	56,0797	561	56,1358	562	56,1920	562	56,2482	563	56,3045	563
4,73	56,6434	566	56,7000	566	56,7568	568	56,8136	568	56,8704	569
4,74	57,2127	573	57,2700	573	57,3273	574	57,3847	574	57,4421	575
4,75	57,7878	578	57,8456	579	57,9035	580	57,9615	580	58,0195	580
4,76	58,3687	584	58,4271	585	58,4856	585	58,5441	586	58,6027	586
4,77	58,9554	590	59,0144	590	59,0734	591	59,1325	592	59,1917	592
4,78	59,5480	596	59,6076	596	59,6672	597	59,7269	598	59,7867	598
4,79	60,1465	602	60,2067	603	60,2670	603	60,3273	603	60,3876	605
4,80	60,7511	608	60,8119	608	60,8727	609	60,9336	610	60,9946	611
4,81	61,3617	614	61,4231	615	61,4846	615	61,5461	616	61,6077	617
4,82	61,9785	620	62,0405	621	62,1026	622	62,1648	622	62,2270	622
4,83	62,6015	626	62,6641	627	62,7268	628	62,7896	628	62,8524	629
4,84	63,2307	633	63,2940	633	63,3573	634	63,4207	635	63,4842	635
4,85	63,8663	639	63,9302	640	63,9942	640	64,0582	641	64,1223	642
4,86	64,5082	646	64,5728	646	64,6374	647	64,7021	647	64,7668	648
4,87	65,1566	652	65,2218	653	65,2871	653	65,3524	654	65,4178	655
4,88	65,8115	659	65,8774	659	65,9433	660	66,0093	660	66,0753	662
4,89	66,4730	665	66,5395	666	66,6061	667	66,6728	667	66,7395	668
4,90	67,1412	671	67,2083	673	67,2756	673	67,3429	674	67,4103	675
4,91	67,8160	679	67,8839	679	67,9518	680	68,0198	681	68,0879	681
4,92	68,4977	685	68,5662	686	68,6348	687	68,7035	687	68,7722	688
4,93	69,1861	693	69,2554	693	69,3247	693	69,3940	695	69,4635	695
4,94	69,8815	700	69,9515	700	70,0215	700	70,0915	702	70,1617	702
4,95	70,5839	707	70,6546	707	70,7253	707	70,7960	709	70,8669	709
4,96	71,2934	713	71,3647	714	71,4361	715	71,5076	716	71,5792	716
4,97	72,0100	720	72,0820	722	72,1542	721	72,2263	723	72,2986	724
4,98	72,7338	727	72,8065	729	72,8794	729	72,9523	730	73,0253	731
4,99	73,4648	735	73,5383	736	73,6119	737	73,6856	737	73,7593	738

Błąd przybliżeń podanych na str. 224 i 225 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. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
45,2286	453	45,2739	453	45,3192	454	45,3646	454	45,4100	454	4,50
45,6833	457	45,7290	458	45,7748	458	45,8206	459	45,8665	459	4,51
46,1425	462	46,1887	462	46,2349	463	46,2812	463	46,3275	464	4,52
46,6064	466	46,6530	467	46,6997	468	46,7465	467	46,7932	469	4,53
47,0749	471	47,1220	472	47,1692	472	47,2164	472	47,2636	473	4,54
47,5481	476	47,5957	476	47,6433	477	47,6910	477	47,7387	478	4,55
48,0261	481	48,0742	481	48,1223	481	48,1704	482	48,2186	483	4,56
48,5089	485	48,5574	486	48,6060	486	48,6546	487	48,7033	488	4,57
48,9965	490	49,0455	491	49,0946	491	49,1437	492	49,1929	492	4,58
49,4890	495	49,5385	496	49,5881	496	49,6377	497	49,6874	497	4,59
49,9865	500	50,0365	501	50,0866	501	50,1367	502	50,1869	502	4,60
50,4890	505	50,5395	506	50,5901	506	50,6407	507	50,6914	507	4,61
50,9965	510	51,0475	511	51,0986	511	51,1497	512	51,2009	513	4,62
51,5091	516	51,5607	515	51,6122	517	51,6639	517	51,7156	517	4,63
52,0269	520	52,0789	522	52,1311	521	52,1832	522	52,2354	523	4,64
52,5499	525	52,6024	527	52,6551	527	52,7078	527	52,7605	528	4,65
53,0781	531	53,1312	532	53,1844	532	53,2376	533	53,2909	533	4,66
53,6116	537	53,6653	537	53,7190	537	53,7727	538	53,8265	539	4,67
54,1505	542	54,2047	542	54,2589	543	54,3132	544	54,3676	544	4,68
54,6948	548	54,7496	548	54,8044	548	54,8592	549	54,9141	549	4,69
55,2446	553	55,2999	553	55,3552	554	55,4106	555	55,4661	555	4,70
55,7999	559	55,8558	559	55,9117	559	55,9676	560	56,0236	561	4,71
56,3608	564	56,4172	565	56,4737	565	56,5302	565	56,5867	567	4,72
56,9273	570	56,9843	570	57,0413	571	57,0984	571	57,1555	572	4,73
57,4996	575	57,5571	576	57,6147	576	57,6723	577	57,7300	578	4,74
58,0775	581	58,1356	582	58,1938	582	58,2520	583	58,3103	584	4,75
58,6613	587	58,7200	588	58,7788	588	58,8376	588	58,8964	590	4,76
59,2509	593	59,3102	594	59,3696	594	59,4290	595	59,4885	595	4,77
59,8465	599	59,9064	599	59,9663	600	60,0263	601	60,0864	601	4,78
60,4481	604	60,5085	606	60,5691	606	60,6297	607	60,6904	607	4,79
61,0557	610	61,1167	612	61,1779	612	61,2391	613	61,3004	613	4,80
61,6694	617	61,7311	617	61,7928	619	61,8547	619	61,9166	619	4,81
62,2892	623	62,3515	624	62,4139	625	62,4764	625	62,5389	626	4,82
62,9153	630	62,9783	630	63,0413	631	63,1044	631	63,1675	632	4,83
63,5477	636	63,6113	636	63,6749	638	63,7387	637	63,8024	639	4,84
64,1865	642	64,2507	643	64,3150	643	64,3793	644	64,4437	645	4,85
64,8316	649	64,8965	649	64,9614	650	65,0264	651	65,0915	651	4,86
65,4833	655	65,5488	656	65,6144	656	65,6800	657	65,7457	658	4,87
66,1415	661	66,2076	663	66,2739	663	66,3402	664	66,4066	664	4,88
66,8063	668	66,8731	669	66,9400	670	67,0070	671	67,0741	671	4,89
67,4778	675	67,5453	676	67,6129	676	67,6805	677	67,7482	678	4,90
68,1560	682	68,2242	683	68,2925	683	68,3608	684	68,4292	685	4,91
68,8410	689	68,9099	690	68,9789	690	69,0479	691	69,1170	691	4,92
69,5330	696	69,6026	696	69,6722	697	69,7419	698	69,8117	698	4,93
70,2319	702	70,3021	704	70,3725	704	70,4429	705	70,5134	705	4,94
70,9378	710	71,0088	710	71,0798	711	71,1509	712	71,2221	713	4,95
71,6508	717	71,7225	717	71,7942	719	71,8661	719	71,9380	720	4,96
72,3710	724	72,4434	725	72,5159	725	72,5884	726	72,6610	728	4,97
73,0984	731	73,1715	732	73,2447	733	73,3180	734	73,3914	734	4,98
73,8331	739	73,9070	739	73,9809	740	74,0549	741	74,1290	742	4,99

$\sinh x$

The error of the approximations given on pp. 224 and 225 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. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
5,00	74,2032	743	74,2775	743	74,3518	744	74,4262	744	74,5006	746
5,01	74,9490	750	75,0240	751	75,0991	751	75,1742	753	75,2495	752
5,02	75,7023	758	75,7781	758	75,8539	759	75,9298	760	76,0058	760
5,03	76,4632	765	76,5397	766	76,6163	767	76,6930	767	76,7697	768
5,04	77,2318	772	77,3090	774	77,3864	774	77,4638	775	77,5413	776
5,05	78,0080	781	78,0861	781	78,1642	782	78,2424	783	78,3207	784
5,06	78,7921	788	78,8709	789	78,9498	790	79,0288	791	79,1079	792
5,07	79,5840	797	79,6637	797	79,7434	798	79,8232	798	79,9030	800
5,08	80,3839	804	80,4643	806	80,5449	806	80,6255	806	80,7061	808
5,09	81,1919	812	81,2731	813	81,3544	814	81,4358	815	81,5173	816
5,10	82,0079	821	82,0900	821	82,1721	822	82,2543	823	82,3366	824
5,11	82,8322	828	82,9150	830	82,9980	830	83,0810	832	83,1642	832
5,12	83,6647	837	83,7484	838	83,8322	839	83,9161	839	84,0000	841
5,13	84,5056	846	84,5902	846	84,6748	847	84,7595	848	84,8443	849
5,14	85,3550	854	85,4404	854	85,5258	856	85,6114	857	85,6971	857
5,15	86,2128	863	86,2991	864	86,3855	864	86,4719	865	86,5584	866
5,16	87,0794	871	87,1665	872	87,2537	873	87,3410	874	87,4284	875
5,17	87,9546	880	88,0426	881	88,1307	882	88,2189	882	88,3071	884
5,18	88,8386	889	88,9275	890	89,0165	890	89,1055	892	89,1947	892
5,19	89,7315	898	89,8213	898	89,9111	900	90,0011	901	90,0912	901
5,20	90,6334	906	90,7240	908	90,8148	909	90,9057	909	90,9966	911
5,21	91,5443	916	91,6359	917	91,7276	918	91,8194	918	91,9112	920
5,22	92,4644	925	92,5569	926	92,6495	927	92,7422	928	92,8350	929
5,23	93,3937	935	93,4872	935	93,5807	936	93,6743	938	93,7681	938
5,24	94,3324	944	94,4268	945	94,5213	945	94,6158	947	94,7105	948
5,25	95,2805	953	95,3758	955	95,4713	955	95,5668	956	95,6624	957
5,26	96,2381	963	96,3344	964	96,4308	965	96,5273	966	96,6239	967
5,27	97,2054	973	97,3027	973	97,4000	975	97,4975	975	97,5950	977
5,28	98,1824	982	98,2806	984	98,3790	984	98,4774	985	98,5759	987
5,29	99,1692	992	99,2684	993	99,3677	995	99,4672	995	99,5667	996
5,29										
5,30	100,166	100	100,266	100	100,366	101	100,467	100	100,567	101
5,31	101,173	101	101,274	101	101,375	102	101,477	101	101,578	102
5,32	102,189	103	102,292	102	102,394	103	102,497	102	102,599	103
5,33	103,217	103	103,320	103	103,423	104	103,527	103	103,630	104
5,34	104,254	104	104,358	105	104,463	104	104,567	105	104,672	105
5,35	105,302	105	105,407	106	105,513	105	105,618	106	105,724	106
5,36	106,360	107	106,467	106	106,573	107	106,680	106	106,786	107
5,37	107,429	108	107,537	107	107,644	108	107,752	108	107,860	108
5,38	108,509	108	108,617	109	108,726	109	108,835	109	108,944	109
5,39	109,599	110	109,709	110	109,819	110	109,929	110	110,039	110
5,40	110,701	111	110,812	111	110,923	111	111,034	111	111,145	111
5,41	111,814	111	111,925	112	112,037	113	112,150	112	112,262	112
5,42	112,937	113	113,050	113	113,163	114	113,277	113	113,390	113
5,43	114,072	115	114,187	114	114,301	114	114,415	115	114,530	114
5,44	115,219	115	115,334	116	115,450	115	115,565	116	115,681	115
5,45	116,377	116	116,493	117	116,610	117	116,727	116	116,843	117
5,46	117,547	117	117,664	118	117,782	118	117,900	118	118,018	118
5,47	118,728	119	118,847	119	118,966	119	119,085	119	119,204	119
5,48	119,921	120	120,041	120	120,161	121	120,282	120	120,402	120
5,49	121,127	121	121,248	121	121,369	121	121,490	122	121,612	122

Błąd przybliżeń podanych na str. 226 i 227 jest dla $5,000 \leq x < 5,299$ nie większy niż 0,00005, a dla $5,299 \leq x \leq 5,500$ 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. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
74,5752	746	74,6498	747	74,7245	748	74,7993	748	74,8741	749	5,00
75,3247	754	75,4001	755	75,4756	755	75,5511	756	75,6267	756	5,01
76,0818	762	76,1580	762	76,2342	763	76,3105	763	76,3868	764	5,02
76,8465	769	76,9234	770	77,0004	770	77,0774	772	77,1546	772	5,03
77,6189	777	77,6966	777	77,7743	779	77,8522	779	77,9301	779	5,04
78,3991	784	78,4775	785	78,5560	786	78,6346	787	78,7133	788	5,05
79,1871	792	79,2663	793	79,3456	794	79,4250	795	79,5045	795	5,06
79,9830	800	80,0630	801	80,1431	802	80,2233	803	80,3036	803	5,07
80,7869	808	80,8677	809	80,9486	810	81,0296	811	81,1107	812	5,08
81,5989	816	81,6805	817	81,7622	818	81,8440	819	81,9259	820	5,09
82,4190	825	82,5015	825	82,5840	826	82,6666	828	82,7494	828	5,10
83,2474	833	83,3307	834	83,4141	834	83,4975	836	83,5811	836	5,11
84,0841	841	84,1682	842	84,2524	843	84,3367	844	84,4211	845	5,12
84,9292	850	85,0142	851	85,0993	851	85,1844	852	85,2696	854	5,13
85,7828	859	85,8687	859	85,9546	860	86,0406	861	86,1267	861	5,14
86,6450	867	86,7317	868	86,8185	869	86,9054	869	86,9923	871	5,15
87,5159	875	87,6034	877	87,6911	877	87,7788	879	87,8667	879	5,16
88,3955	884	88,4839	886	88,5725	886	88,6611	887	88,7498	888	5,17
89,2839	894	89,3733	894	89,4627	895	89,5522	896	89,6418	897	5,18
90,1813	902	90,2715	904	90,3619	904	90,4523	905	90,5428	906	5,19
91,0877	911	91,1788	913	91,2701	913	91,3614	914	91,4528	915	5,20
92,0032	920	92,0952	922	92,1874	922	92,2796	924	92,3720	924	5,21
92,9279	930	93,0209	930	93,1139	932	93,2071	933	93,3004	933	5,22
93,8619	939	93,9558	940	94,0498	941	94,1439	942	94,2381	943	5,23
94,8053	948	94,9001	950	94,9951	950	95,0901	952	95,1853	952	5,24
95,7581	958	95,8539	960	95,9499	960	96,0459	961	96,1420	961	5,25
96,7206	967	96,8173	969	96,9142	970	97,0112	970	97,1082	972	5,26
97,6927	977	97,7904	979	97,8883	979	97,9862	981	98,0843	981	5,27
98,6746	987	98,7733	988	98,8721	989	98,9710	991	99,0701	991	5,28
99,6663	997	99,7660	998	99,8658	1000	99,9658	1000			5,29
								100,066	100	5,29
100,668	101	100,769	101	100,870	100	100,970	102	101,072	101	5,30
101,680	102	101,782	101	101,883	102	101,985	102	102,087	102	5,31
102,702	103	102,805	102	102,907	103	103,010	103	103,113	104	5,32
103,734	104	103,838	104	103,942	104	104,046	104	104,150	104	5,33
104,777	104	104,881	105	104,986	105	105,091	106	105,197	105	5,34
105,830	106	105,936	106	106,042	106	106,148	106	106,254	106	5,35
106,893	107	107,000	107	107,107	107	107,214	108	107,322	107	5,36
107,968	108	108,076	108	108,184	108	108,292	108	108,400	109	5,37
109,053	109	109,162	109	109,271	109	109,380	110	109,490	109	5,38
110,149	110	110,259	110	110,369	111	110,480	110	110,590	111	5,39
111,256	111	111,367	112	111,479	111	111,590	112	111,702	112	5,40
112,374	112	112,486	113	112,599	113	112,712	112	112,824	113	5,41
113,503	114	113,617	114	113,731	114	113,845	113	113,958	114	5,42
114,644	115	114,759	115	114,874	115	114,989	115	115,104	115	5,43
115,796	116	115,912	116	116,028	116	116,144	117	116,261	116	5,44
116,960	117	117,077	117	117,194	118	117,312	117	117,429	118	5,45
118,136	118	118,254	118	118,372	119	118,491	118	118,609	119	5,46
119,323	120	119,443	119	119,562	120	119,682	119	119,801	120	5,47
120,522	121	120,643	121	120,764	121	120,885	120	121,005	122	5,48
121,734	122	121,856	121	121,977	122	122,099	123	122,222	122	5,49

$\sinh x$

The error of the approximations given on pp. 226 and 227 is not greater than 0,00005 for $5,000 \leq x < 5,299$ and not greater than 0,0005 for $5,299 \leq x < 5,500$. The error of an approximation obtained by linear interpolation for $5,000 < x < 5,299$ is 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. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
5,50	122,344	122	122,466	123	122,589	123	122,712	122	122,834	123
5,51	123,574	123	123,697	124	123,821	124	123,945	124	124,069	124
5,52	124,816	124	124,940	125	125,065	126	125,191	125	125,316	125
5,53	126,070	126	126,196	126	126,322	127	126,449	126	126,575	127
5,54	127,337	127	127,464	128	127,592	128	127,720	127	127,847	128
5,55	128,617	129	128,746	128	128,874	129	129,003	129	129,132	130
5,56	129,909	130	130,039	131	130,170	130	130,300	130	130,430	131
5,57	131,215	131	131,346	132	131,478	131	131,609	132	131,741	132
5,58	132,534	133	132,667	132	132,799	133	132,932	133	133,065	133
5,59	133,866	134	134,000	134	134,134	134	134,268	134	134,402	135
5,60	135,211	136	135,347	135	135,482	136	135,618	135	135,753	136
5,61	136,570	137	136,707	137	136,844	137	136,981	137	137,118	137
5,62	137,943	138	138,081	138	138,219	138	138,357	139	138,496	138
5,63	139,329	140	139,469	139	139,608	140	139,748	140	139,888	140
5,64	140,730	140	140,870	141	141,011	141	141,152	142	141,294	141
5,65	142,144	142	142,286	143	142,429	142	142,571	143	142,714	142
5,66	143,573	143	143,716	144	143,860	144	144,004	144	144,148	144
5,67	145,016	145	145,161	145	145,306	145	145,451	146	145,597	145
5,68	146,473	147	146,620	146	146,766	147	146,913	147	147,060	147
5,69	147,945	148	148,093	148	148,241	149	148,390	148	148,538	149
5,70	149,432	150	149,582	149	149,731	150	149,881	150	150,031	150
5,71	150,934	151	151,085	151	151,236	151	151,387	152	151,539	151
5,72	152,451	152	152,603	153	152,756	153	152,909	153	153,062	153
5,73	153,983	154	154,137	154	154,291	155	154,446	154	154,600	155
5,74	155,531	155	155,686	156	155,842	156	155,998	156	156,154	156
5,75	157,094	157	157,251	157	157,408	158	157,566	157	157,723	158
5,76	158,673	158	158,831	159	158,990	159	159,149	160	159,309	159
5,77	160,267	161	160,428	160	160,588	161	160,749	161	160,910	161
5,78	161,878	162	162,040	162	162,202	162	162,364	163	162,527	162
5,79	163,505	164	163,669	163	163,832	164	163,996	164	164,160	165
5,80	165,148	166	165,314	165	165,479	165	165,644	166	165,810	166
5,81	166,808	167	166,975	167	167,142	167	167,309	168	167,477	167
5,82	168,485	168	168,653	169	168,822	169	168,991	169	169,160	169
5,83	170,178	170	170,348	171	170,519	170	170,689	171	170,860	171
5,84	171,888	172	172,060	172	172,232	173	172,405	172	172,577	173
5,85	173,616	173	173,789	174	173,963	174	174,137	175	174,312	174
5,86	175,361	175	175,536	176	175,712	176	175,888	176	176,064	176
5,87	177,123	177	177,300	178	177,478	177	177,655	178	177,833	178
5,88	178,903	179	179,082	179	179,261	180	179,441	179	179,620	180
5,89	180,701	181	180,882	181	181,063	181	181,244	182	181,426	181
5,90	182,517	183	182,700	183	182,883	183	183,066	183	183,249	183
5,91	184,352	184	184,536	185	184,721	185	184,906	185	185,091	185
5,92	186,205	186	186,391	186	186,577	187	186,764	187	186,951	187
5,93	188,076	188	188,264	188	188,452	189	188,641	189	188,830	189
5,94	189,966	190	190,156	190	190,346	191	190,537	191	190,728	190
5,95	191,875	192	192,067	193	192,260	192	192,452	192	192,644	193
5,96	193,804	194	193,998	194	194,192	194	194,386	195	194,581	194
5,97	195,752	195	195,947	196	196,143	197	196,340	196	196,536	197
5,98	197,719	198	197,917	198	198,115	198	198,313	198	198,511	199
5,99	199,706	200	199,906	200	200,106	200	200,306	200	200,506	201

Błąd przybliżeń podanych na str. 228 i 229 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. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
122,957	123	123,080	123	123,203	124	123,327	123	123,450	124	5,50
124,193	124	124,317	125	124,442	124	124,566	125	124,691	125	5,51
125,441	126	125,567	125	125,692	126	125,818	126	125,944	126	5,52
126,702	127	126,829	127	126,956	127	127,083	127	127,210	127	5,53
127,975	128	128,103	129	128,232	128	128,360	128	128,488	129	5,54
129,262	129	129,391	129	129,520	130	129,650	130	129,780	129	5,55
130,561	130	130,691	131	130,822	131	130,953	131	131,084	131	5,56
131,873	132	132,005	132	132,137	132	132,269	132	132,401	133	5,57
133,198	134	133,332	133	133,465	133	133,598	134	133,732	134	5,58
134,537	135	134,672	134	134,806	135	134,941	135	135,076	135	5,59
135,889	136	136,025	136	136,161	136	136,297	137	136,434	136	5,60
137,255	137	137,392	138	137,530	137	137,667	138	137,805	138	5,61
138,634	139	138,773	139	138,912	139	139,051	139	139,190	139	5,62
140,028	140	140,168	140	140,308	140	140,448	141	140,589	141	5,63
141,435	142	141,577	141	141,718	142	141,860	142	142,002	142	5,64
142,856	143	142,999	143	143,142	144	143,286	143	143,429	144	5,65
144,292	145	144,437	144	144,581	145	144,726	145	144,871	145	5,66
145,742	146	145,888	146	146,034	146	146,180	147	146,327	146	5,67
147,207	148	147,355	147	147,502	148	147,650	147	147,797	148	5,68
148,687	148	148,835	149	148,984	149	149,133	150	149,283	149	5,69
150,181	150	150,331	151	150,482	150	150,632	151	150,783	151	5,70
151,690	152	151,842	152	151,994	152	152,146	152	152,298	153	5,71
153,215	153	153,368	154	153,522	153	153,675	154	153,829	154	5,72
154,755	155	154,910	155	155,065	155	155,220	155	155,375	156	5,73
156,310	157	156,467	156	156,623	157	156,780	157	156,937	157	5,74
157,881	158	158,039	158	158,197	159	158,356	158	158,514	159	5,75
159,468	160	159,628	159	159,787	160	159,947	160	160,107	160	5,76
161,071	161	161,232	161	161,393	162	161,555	161	161,716	162	5,77
162,689	163	162,852	163	163,015	163	163,178	164	163,342	163	5,78
164,325	164	164,489	165	164,654	164	164,818	165	164,983	165	5,79
165,976	166	166,142	166	166,308	167	166,475	166	166,641	167	5,80
167,644	168	167,812	168	167,980	168	168,148	168	168,316	169	5,81
169,329	170	169,499	169	169,668	170	169,838	170	170,008	170	5,82
171,031	171	171,202	171	171,373	172	171,545	171	171,716	172	5,83
172,750	173	172,923	173	173,096	173	173,269	173	173,442	174	5,84
174,486	175	174,661	174	174,835	175	175,010	175	175,185	176	5,85
176,240	176	176,416	176	176,592	177	176,769	177	176,946	177	5,86
178,011	178	178,189	178	178,367	179	178,546	178	178,724	179	5,87
179,800	180	179,980	180	180,160	180	180,340	181	180,521	180	5,88
181,607	182	181,789	182	181,971	182	182,153	182	182,335	182	5,89
183,432	184	183,616	183	183,799	184	183,983	184	184,167	185	5,90
185,276	185	185,461	186	185,647	185	185,832	186	186,018	187	5,91
187,138	187	187,325	188	187,513	187	187,700	188	187,888	188	5,92
189,019	189	189,208	189	189,397	190	189,587	189	189,776	190	5,93
190,918	191	191,109	192	191,301	191	191,492	192	191,684	191	5,94
192,837	193	193,030	193	193,223	194	193,417	193	193,610	194	5,95
194,775	195	194,970	195	195,165	195	195,360	196	195,556	196	5,96
196,733	197	196,930	197	197,127	197	197,324	197	197,521	198	5,97
198,710	199	198,909	199	199,108	199	199,307	199	199,506	200	5,98
200,707	201	200,908	201	201,109	201	201,310	202	201,512	201	5,99

$\sinh x$

The error of the approximations given on pp. 228 and 229 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. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
6,00	201,713	202	201,915	202	202,117	202	202,319	203	202,522	202
6,01	203,740	204	203,944	204	204,148	205	204,353	204	204,557	205
6,02	205,788	206	205,994	206	206,200	206	206,406	207	206,613	207
6,03	207,856	208	208,064	208	208,272	209	208,481	208	208,689	209
6,04	209,945	210	210,155	211	210,366	210	210,576	211	210,787	211
6,05	212,055	212	212,267	213	212,480	212	212,692	213	212,905	213
6,06	214,187	214	214,401	214	214,615	215	214,830	215	215,045	215
6,07	216,339	217	216,556	216	216,772	217	216,989	217	217,206	218
6,08	218,513	219	218,732	219	218,951	219	219,170	219	219,389	220
6,09	220,710	220	220,930	221	221,151	222	221,373	221	221,594	222
6,10	222,928	223	223,151	223	223,374	224	223,598	223	223,821	224
6,11	225,168	226	225,394	225	225,619	226	225,845	226	226,071	226
6,12	227,431	228	227,659	228	227,887	228	228,115	228	228,343	228
6,13	229,717	230	229,947	230	230,177	230	230,407	231	230,638	230
6,14	232,026	232	232,258	232	232,490	233	232,723	233	232,956	233
6,15	234,358	234	234,592	235	234,827	235	235,062	235	235,297	235
6,16	236,713	237	236,950	237	237,187	237	237,424	238	237,662	238
6,17	239,092	239	239,331	240	239,571	239	239,810	240	240,050	240
6,18	241,495	242	241,737	241	241,978	243	242,221	242	242,463	242
6,19	243,922	244	244,166	244	244,410	245	244,655	245	244,900	245
6,20	246,374	246	246,620	247	246,867	247	247,114	247	247,361	247
6,21	248,850	249	249,099	249	249,348	249	249,597	250	249,847	250
6,22	251,351	251	251,602	252	251,854	252	252,106	252	252,358	253
6,23	253,877	254	254,131	254	254,385	255	254,640	254	254,894	255
6,24	256,428	257	256,685	257	256,942	257	257,199	257	257,456	258
6,25	259,005	260	259,265	259	259,524	260	259,784	260	260,044	260
6,26	261,609	261	261,870	262	262,132	263	262,395	262	262,657	263
6,27	264,238	264	264,502	265	264,767	265	265,032	265	265,297	265
6,28	266,893	267	267,160	268	267,428	267	267,695	268	267,963	268
6,29	269,576	269	269,845	270	270,115	271	270,386	270	270,656	271
6,30	272,285	272	272,557	273	272,830	273	273,103	273	273,376	274
6,31	275,022	275	275,297	275	275,572	276	275,848	276	276,124	276
6,32	277,786	278	278,064	278	278,342	278	278,620	279	278,899	279
6,33	280,577	281	280,858	281	281,139	281	281,420	282	281,702	282
6,34	283,397	284	283,681	284	283,965	284	284,249	284	284,533	285
6,35	286,245	287	286,532	287	286,819	287	287,106	287	287,393	287
6,36	289,122	290	289,412	289	289,701	290	289,991	290	290,281	291
6,37	292,028	292	292,320	293	292,613	292	292,905	294	293,199	293
6,38	294,963	295	295,258	296	295,554	295	295,849	296	296,145	297
6,39	297,927	299	298,226	298	298,524	299	298,823	299	299,122	299
6,40	300,922	301	301,223	301	301,524	302	301,826	302	302,128	302
6,41	303,946	304	304,250	305	304,555	304	304,859	305	305,164	306
6,42	307,001	307	307,308	307	307,615	308	307,923	308	308,231	309
6,43	310,086	310	310,396	311	310,707	311	311,018	311	311,329	311
6,44	313,203	313	313,516	314	313,830	314	314,144	314	314,458	315
6,45	316,350	317	316,667	317	316,984	317	317,301	317	317,618	318
6,46	319,530	319	319,849	320	320,169	321	320,490	320	320,810	321
6,47	322,741	323	323,064	323	323,387	324	323,711	324	324,035	324
6,48	325,985	326	326,311	326	326,637	327	326,964	327	327,291	328
6,49	329,261	329	329,590	330	329,920	330	330,250	331	330,581	330

Błąd przybliżeń podanych na str. 230 i 231 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. 232.

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
202,724	203	202,927	203	203,130	203	203,333	204	203,537	203	6,00
204,762	205	204,967	205	205,172	205	205,377	205	205,582	206	6,01
206,820	207	207,027	207	207,234	207	207,441	208	207,649	207	6,02
208,898	209	209,107	209	209,316	210	209,526	209	209,735	210	6,03
210,998	211	211,209	211	211,420	212	211,632	211	211,843	212	6,04
213,118	214	213,332	213	213,545	214	213,759	213	213,972	215	6,05
215,260	216	215,476	215	215,691	216	215,907	216	216,123	216	6,06
217,424	217	217,641	218	217,859	218	218,077	218	218,295	218	6,07
219,609	219	219,828	220	220,048	221	220,269	220	220,489	221	6,08
221,816	222	222,038	222	222,260	222	222,482	223	222,705	223	6,09
224,045	224	224,269	225	224,494	224	224,718	225	224,943	225	6,10
226,297	226	226,523	227	226,750	227	226,977	227	227,204	227	6,11
228,571	229	228,800	229	229,029	229	229,258	229	229,487	230	6,12
230,868	231	231,099	232	231,331	231	231,562	232	231,794	232	6,13
233,189	233	233,422	234	233,656	233	233,889	234	234,123	235	6,14
235,532	236	235,768	236	236,004	236	236,240	236	236,476	237	6,15
237,900	238	238,138	238	238,376	238	238,614	239	238,853	239	6,16
240,290	241	240,531	241	240,772	240	241,012	242	241,254	241	6,17
242,705	243	242,948	243	243,191	244	243,435	243	243,678	244	6,18
245,145	245	245,390	245	245,635	246	245,881	246	246,127	247	6,19
247,608	248	247,856	248	248,104	248	248,352	249	248,601	249	6,20
250,097	250	250,347	251	250,598	250	250,848	251	251,099	252	6,21
252,611	252	252,863	253	253,116	254	253,370	253	253,623	254	6,22
255,149	256	255,405	255	255,660	256	255,916	256	256,172	256	6,23
257,714	257	257,971	259	258,230	258	258,488	259	258,747	258	6,24
260,304	260	260,564	261	260,825	261	261,086	261	261,347	262	6,25
262,920	263	263,183	263	263,446	264	263,710	264	263,974	264	6,26
265,562	266	265,828	266	266,094	266	266,360	267	266,627	266	6,27
268,231	269	268,500	268	268,768	269	269,037	269	269,306	270	6,28
270,927	271	271,198	271	271,469	272	271,741	272	272,013	272	6,29
273,650	274	273,924	274	274,198	274	274,472	275	274,747	275	6,30
276,400	277	276,677	276	276,953	278	277,231	277	277,508	278	6,31
279,178	279	279,457	280	279,737	280	280,017	280	280,297	280	6,32
281,984	282	282,266	282	282,548	283	282,831	282	283,114	283	6,33
284,818	285	285,103	285	285,388	286	285,674	285	285,959	286	6,34
287,680	288	287,968	288	288,256	289	288,545	288	288,833	289	6,35
290,572	290	290,862	291	291,153	292	291,445	291	291,736	292	6,36
293,492	294	293,786	293	294,079	295	294,374	294	294,668	295	6,37
296,442	296	296,738	297	297,035	297	297,332	298	297,630	297	6,38
299,421	299	299,720	300	300,020	300	300,320	301	300,621	301	6,39
302,430	303	302,733	303	303,036	303	303,339	303	303,642	304	6,40
305,470	305	305,775	306	306,081	306	306,387	307	306,694	307	6,41
308,540	308	308,848	309	309,157	310	309,467	309	309,776	310	6,42
311,640	312	311,952	312	312,264	313	312,577	313	312,890	313	6,43
314,773	314	315,087	316	315,403	315	315,718	316	316,034	316	6,44
317,936	318	318,254	319	318,573	318	318,891	319	319,210	320	6,45
321,131	322	321,453	321	321,774	322	322,096	323	322,419	322	6,46
324,359	324	324,683	325	325,008	325	325,333	326	325,659	326	6,47
327,619	328	327,947	328	328,275	328	328,603	329	328,932	329	6,48
330,911	331	331,242	332	331,574	332	331,906	332	332,238	332	6,49

$\sinh x$

The error of the approximations given on pp. 230 and 231 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. 233.

XII. Sinus hiperboliczny ($\sinh x$)

x	0	δ	1	δ	2	δ	3	δ	4	δ
6,50	332,570	333	332,903	333	333,236	333	333,569	334	333,903	334
6,51	335,912	337	336,249	336	336,585	337	336,922	337	337,259	337
6,52	339,288	340	339,628	340	339,968	340	340,308	340	340,648	341
6,53	342,698	343	343,041	343	343,384	344	343,728	344	344,072	344
6,54	346,143	346	346,489	347	346,836	347	347,183	347	347,530	348
6,55	349,621	350	349,971	350	350,321	351	350,672	351	351,023	351
6,56	353,135	353	353,488	354	353,842	354	354,196	355	354,551	354
6,57	356,684	357	357,041	357	357,398	358	357,756	358	358,114	358
6,58	360,269	360	360,629	361	360,990	361	361,351	362	361,713	362
6,59	363,890	364	364,254	364	364,618	365	364,983	365	365,348	366
6,60	367,547	368	367,915	368	368,283	368	368,651	369	369,020	369
6,61	371,241	371	371,612	372	371,984	372	372,356	373	372,729	373
6,62	374,972	375	375,347	376	375,723	375	376,098	377	376,475	376
6,63	378,740	379	379,119	380	379,499	379	379,878	380	380,258	381
6,64	382,547	383	382,930	383	383,313	383	383,696	384	384,080	384
6,65	386,392	386	386,778	387	387,165	387	387,552	388	387,940	388
6,66	390,275	390	390,665	391	391,056	391	391,447	392	391,839	392
6,67	394,197	395	394,592	394	394,986	396	395,382	395	395,777	396
6,68	398,159	398	398,557	399	398,956	399	399,355	400	399,755	400
6,69	402,161	402	402,563	403	402,966	403	403,369	403	403,772	404
6,70	406,202	407	406,609	407	407,016	407	407,423	407	407,830	408
6,71	410,285	410	410,695	411	411,106	411	411,517	412	411,929	412
6,72	414,408	415	414,823	415	415,238	415	415,653	416	416,069	416
6,73	418,573	419	418,992	419	419,411	420	419,831	420	420,251	420
6,74	422,780	423	423,203	423	423,626	424	424,050	424	424,474	425
6,75	427,029	427	427,456	428	427,884	428	428,312	428	428,740	429
6,76	431,321	431	431,752	432	432,184	432	432,616	433	433,049	434
6,77	435,655	436	436,091	437	436,528	436	436,964	437	437,401	438
6,78	440,034	440	440,474	441	440,915	441	441,356	441	441,797	442
6,79	444,456	445	444,901	445	445,346	446	445,792	446	446,238	446
6,80	448,923	449	449,372	450	449,822	450	450,272	450	450,722	451
6,81	453,435	454	453,889	454	454,343	454	454,797	455	455,252	456
6,82	457,992	458	458,450	459	458,909	459	459,368	460	459,828	460
6,83	462,595	463	463,058	463	463,521	464	463,985	464	464,449	465
6,84	467,244	468	467,712	467	468,179	469	468,648	469	469,117	469
6,85	471,940	472	472,412	473	472,885	473	473,358	473	473,831	475
6,86	476,683	477	477,160	477	477,637	478	478,115	479	478,594	478
6,87	481,474	481	481,955	483	482,438	482	482,920	484	483,404	483
6,88	486,313	486	486,799	487	487,286	488	487,774	488	488,262	488
6,89	491,200	492	491,692	492	492,184	492	492,676	493	493,169	493
6,90	496,137	496	496,633	497	497,130	498	497,628	497	498,125	499

Dla $x \geq 6,91$ jest $\sinh x \approx \frac{1}{2} e^x - 0,00025$ z błędem mniejszym niż 0,00025. Korzystamy wtedy z tablicy IX.

Błąd przybliżeń podanych na str. 232 i 233 jest nie większy niż 0,0005, a błąd przybliżenia otrzymanego przez interpolację liniową jest mniejszy niż 0,000563 + błąd zaokrąglenia wyniku.

Przykład. Obliczmy $\sinh 6,78512$. Odczytujemy z tablicy, że $\sinh 6,785 \approx 442,239$ i $\delta = 443$, a w tablicy poprawek dla $\delta = 443$ i cyfr 1 i 2 liczby 44,3 i 88,6. Zatem $\sinh 6,78512 \approx 442,239 + 0,0443 + 0,00886 = 442,29216$ z dokładnością do 0,000563, czyli $\sinh 6,78512 \approx 442,292$ z dokładnością do 0,00073. (Poprawkę do liczby $\sinh 6,785 \approx 442,239$ można również obliczyć mnożąc $0,12 \cdot \delta = 0,12 \cdot 443 = 53,16$. Mamy wtedy $\sinh 6,78512 \approx 442,239 + 0,05316 = 442,29216$, jak poprzednio).

XII. Hyperbolic sine ($\sinh x$)

5	δ	6	δ	7	δ	8	δ	9	δ	x
334,237	334	334,571	335	334,906	335	335,241	336	335,577	335	6,50
337,596	338	337,934	338	338,272	339	338,611	338	338,949	339	6,51
340,989	341	341,330	342	341,672	342	342,014	342	342,356	342	6,52
344,416	345	344,761	345	345,106	345	345,451	346	345,797	346	6,53
347,878	348	348,226	348	348,574	349	348,923	349	349,272	349	6,54
351,374	351	351,725	352	352,077	353	352,430	352	352,782	353	6,55
354,905	355	355,260	356	355,616	356	355,972	356	356,328	356	6,56
358,472	359	358,831	359	359,190	359	359,549	360	359,909	360	6,57
362,075	362	362,437	363	362,800	363	363,163	363	363,526	364	6,58
365,714	366	366,080	366	366,446	367	366,813	367	367,180	367	6,59
369,389	370	369,759	370	370,129	370	370,499	371	370,870	371	6,60
373,102	373	373,475	374	373,849	374	374,223	374	374,597	375	6,61
376,851	377	377,228	378	377,606	378	377,984	378	378,362	378	6,62
380,639	381	381,020	381	381,401	382	381,783	381	382,164	383	6,63
384,464	385	384,849	385	385,234	386	385,620	385	386,005	387	6,64
388,328	389	388,717	389	389,106	389	389,495	390	389,885	390	6,65
392,231	393	392,624	392	393,016	394	393,410	393	393,803	394	6,66
396,173	396	396,569	397	396,966	397	397,363	398	397,761	398	6,67
400,155	400	400,555	401	400,956	401	401,357	402	401,759	402	6,68
404,176	405	404,581	405	404,986	405	405,391	405	405,796	406	6,69
408,238	409	408,647	409	409,056	409	409,465	410	409,875	410	6,70
412,341	413	412,754	413	413,167	413	413,580	414	413,994	414	6,71
416,485	417	416,902	417	417,319	418	417,737	418	418,155	418	6,72
420,671	421	421,092	421	421,513	422	421,935	422	422,357	423	6,73
424,899	425	425,324	426	425,750	426	426,176	426	426,602	427	6,74
429,169	430	429,599	429	430,028	431	430,459	430	430,889	432	6,75
433,483	433	433,916	434	434,350	435	434,785	435	435,220	435	6,76
437,839	438	438,277	439	438,716	439	439,155	439	439,594	440	6,77
442,239	443	442,682	443	443,125	443	443,568	444	444,012	444	6,78
446,684	447	447,131	447	447,578	448	448,026	448	448,474	449	6,79
451,173	452	451,625	452	452,077	452	452,529	453	452,982	453	6,80
455,708	456	456,164	456	456,620	457	457,077	457	457,534	458	6,81
460,288	460	460,748	461	461,209	462	461,671	462	462,133	462	6,82
464,914	465	465,379	465	465,844	466	466,310	467	466,777	467	6,83
469,586	470	470,056	470	470,526	471	470,997	471	471,468	472	6,84
474,306	474	474,780	475	475,255	476	475,731	476	476,207	476	6,85
479,072	480	479,552	480	480,032	480	480,512	481	480,993	481	6,86
483,887	484	484,371	485	484,856	485	485,341	486	485,827	486	6,87
488,750	489	489,239	490	489,729	490	490,219	490	490,709	491	6,88
493,662	494	494,156	495	494,651	495	495,146	495	495,641	496	6,89
498,624	499	499,123	499	499,622	500	500,122	500	500,622	501	6,90

$\sinh x$

For $x > 6,91$ we have $\sinh x \approx \frac{1}{2}e^x - 0,00025$ with error less than 0,00025 and we use Table IX.

The error of the approximations given on pp. 232 and 233 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. Find $\sinh 6,78512$. We read in the table that $\sinh 6,785 \approx 442,239$ and $\delta = 443$ and in the table of proportional parts we find for $\delta = 443$ and the figures 1 and 2 the numbers 44,3 and 88,6. Consequently $\sinh 6,78512 \approx 442,239 + 0,0443 + 0,00886 = 442,29216$ with error less than 0,000563, i. e. $\sinh 6,78512 \approx 442,292$ with error less than 0,00073. (The correction for the number $\sinh 6,785 \approx 442,239$ can also be found by multiplying $0,12 \cdot \delta = 0,12 \cdot 443 = 53,16$. We then have $\sinh 6,78512 \approx 442,239 + 0,05316 = 442,29216$ as before).