SCIENTIFIC TABLES

EDITED BY K. DIEM AND C. LENTNER

SEVENTH EDITION

SCIENTIFIC TABLES

EDITED BY K. DIEM AND C. LENTNER

SEVENTH EDITION

PUBLISHED BY CIBA-GEIGY LIMITED, BASLE, SWITZERLAND

Reprinted 1971
Printed in Germany

Contents

Contents

Notes for the guidance of users

Apart from the main contents (above) and general index (pages 765 et seq.) the user will find the contents of the chapter on 'Statistical Methods' on page 145, that of the chapters on 'Constituents of Living Matter' and 'Metabolism' on page 307; in addition there is a separate detailed index to the chapter on 'Statistical Methods' on pages 197–198.

Zero values are indicated by the figure 0 throughout the book. A dash (–) signifies that the value is unknown, and this sign should on no account be interpreted as a zero value.

As a rule, the meanings of symbols and abbreviations are given where they first occur. For units of measurement an alphabetical list is available on page 199.

In the numerical tables, a point over the last figure (or figures) indicates a recurring figure (or figures), thus

$$1.\dot{6} = 1.666\,666\ldots$$
$$1.65\dot{2}\dot{7}\dot{8} = 1.652\,782\,782\,78\ldots$$

In general the number of places given has been dictated by the space available. The user should abstract as many as he needs and round off accordingly.

Exact values have been distinguished from rounded-off values by printing the last figure in **bold-face** type. Thus, 1.125**7** would be the rounded-off value of, say, 1.1257354 . . ., while 1.125**7** is an exact number. This notation is used in particular for the arbitrarily defined values of constants.

When they have been calculated according to statistical procedures (usually as mean value ± 2 standard deviations), normal ranges are given under the heading '95% range' (note that this practice differs from that adopted in previous editions).

For obvious reasons we have had to restrict bibliographical references to a representative selection of recently published original papers and reviews. In fields where research activity is currently high a rather fuller bibliography is given. The abbreviations used in the literature references are those recommended by the UNESCO and WHO (*World Medical Periodicals*, World Medical Association, New York, 1961).

Additional copies of the appendices in the inside back cover of this book may be obtained by application to CIBA-GEIGY Limited, PH 6.44, CH-4055 Basle, Switzerland.

SCIENTIFIC TABLES

EDITED BY K. DIEM AND C. LENTNER

SEVENTH EDITION

SCIENTIFIC TABLES

EDITED BY K. DIEM AND C. LENTNER

SEVENTH EDITION

PUBLISHED BY CIBA-GEIGY LIMITED, BASLE, SWITZERLAND

Reprinted 1971
Printed in Germany

Publisher's Foreword

This 7th edition of the former *Geigy Scientific Tables* pursues the aim of earlier editions, namely to provide doctors and biologists with basic data in a concise form and thus spare them much searching in the literature.

In the 6th edition the main changes from the previous edition consisted of an extension of the mathematical, physical and chemical data and a new chapter devoted to biochemistry; in this edition the principal difference is the greatly expanded medical part of the book. The increasing extent to which physical, physicochemical and biochemical methods are finding application in medicine has resulted in the last few years in an immense accumulation of new data whose proper evaluation can be undertaken only by specialists. For this reason we have been compelled in this edition to enlist the cooperation of outside experts to a much greater degree than in the past. Here we would like to thank all those who have contributed in this way – whether in the form of original articles or expert advice – for their invaluable help. Their names are listed overleaf.

We would also like to express our appreciation once again of the assistance of all those who have made suggestions or drawn our attention to errors. If we have been unable to adopt all the suggestions put to us, this has been due to the limits set us by the physical compass of the *Scientific Tables*. Users can rest assured that we shall continue to do our best to meet their wishes in the future.

CIBA-GEIGY Limited, Basle

Editors' Foreword

All the fields covered by the 6th edition of the *Scientific Tables* are again represented in this new edition with the exception of 'Infectious Diseases', the chapter on which appears as a separate publication. The thoroughgoing revision of the remaining chapters has resulted in a number of major changes, of which the following are worthy of special mention.

The data on units of measurement and the physical constants take account of decisions and recommendations adopted by the various international commissions up to March 1969, in particular those concerned with the introduction of the International System of Units. The adoption of the unified scale of atomic weights based on the isotope carbon-12 has involved the recalculation of molecular weights throughout the book. In the physicochemical part of the book a chapter on pH standards has been added, and the data on buffer solutions have been recalculated to the pH scale of the National Bureau of Standards.

'Biochemistry' has been greatly enlarged, particularly by the inclusion of more data on nucleic acids and protein and fatty-acid synthesis as well as by the addition of a new chapter on 'Inborn Errors of Metabolism'. Throughout this section – as in the other sections – the recommendations on nomenclature made by the International Union of Pure and Applied Chemistry and the International Union of Biochemistry have been largely adhered to.

In the section on nutrition due regard has been paid to the considerable advances made in recent years in knowledge of the nutritional significance of the vitamins; and important new sources have been utilized in revising the data on the composition of foods.

Of the chapters comprising the section on 'Composition and Functions of the Body', those on the composition of the body, renal function and respiration in particular have been greatly extended. Under the heading of body fluids the subject of blood enzymes has been given much more thorough treatment, and chapters on the synovial fluid and sweat have been added.

Under body measurements the normal data of pregnancy have been completely revised, and the chapter now includes tables of weights of the organs.

The final section of the book is now that on hormones, an arrangement that has permitted the inclusion of more recent endocrinological data from this rapidly advancing field than would otherwise have been possible.

K. Diem
C. Lentner

Acknowledgments

The editors are indebted to the following for their invaluable assistance in compiling this edition of the Scientific Tables:

Dr. M. Aliapoulios, Peter Bent Brigham Hospital, Boston, Mass.
Prof. M. Allgöwer, University Dept. of Surgery, Municipal Hospital, Basle
Dr. G. Becker, Braunschweig
Dr. S. Böhme, Institute of Astronomical Computation, Heidelberg
Dr. C. G. von Boroviczény, Dept. of Medicine, University of Freiburg i. Br.
Dr. L. Braverman, St. Elizabeth's Hospital, Boston, Mass.
Dr. A. Brügger, Zurich
Dr. R. B. Clayton, Dept. of Psychiatry, Stanford University, Palo Alto
Dr. E. R. Cohen, North American Rockwell Science Center, Thousand Oaks, Calif.
Dr. R. A. Cooper, Dept. of Biochemistry, University of Leicester
Dr. D. P. Dearnaley, Dept. of Pharmacology, University of Oxford
Dr. J. W. T. Dickerson, Dept. of Experimental Medicine, University of Cambridge
Prof. W. Fritz, Braunschweig
Prof. W. Furrer, Swiss Federal Institute of Technology, Zurich
Prof. Maria-Pia Geppert, Dept. of Medical Statistics, University of Tübingen
Dr. H. M. Goodman, Harvard Medical School, Boston, Mass.
Dr. U. F. Gruber, University Dept. of Surgery, Municipal Hospital, Basle
Dr. M. J. Herrera, Joslin Research Laboratory, Boston, Mass.
Prof. H. Herzog, Dept. of Respiratory Diseases, Municipal Hospital, Basle
Prof. W. H. Hitzig, Children's Hospital, Zurich
Prof. L. P. Hollander, Blood Donor Centre of the Swiss Red Cross, Basle
J. Hoppe-Blank, Braunschweig
Prof. W. Hübner, Braunschweig
Dr. F. E. Hytten, Reproduction and Growth Research Unit, University of Newcastle-upon-Tyne
Prof. M. J. Jaeger, Dept. of Physiology, University of Fribourg (Switzerland)
Prof. E. Kallee, Isotope Laboratory, Dept. of Medicine, University of Tübingen
Dr. H. J. Kaufmann, Dept. of Radiology, Children's Hospital, Basle
Dr. F. Kohler, Dept. of Physical Chemistry, University of Vienna
Prof. H. L. Kornberg, F.R.S., Dept. of Biochemistry, University of Leicester
Professor Sir Hans Krebs, F.R.S., Metabolic Research Laboratory, Nuffield Dept. of Clinical Medicine, Oxford
Dr. J. M. Lowenstein, Graduate Dept. of Biochemistry, Brandeis University, Waltham, Mass.
Dr. Patricia Lund, Metabolic Research Laboratory, Nuffield Dept. of Clinical Medicine, Oxford
Prof. H. Lüthy, University Dept. of Radiology, Municipal Hospital, Basle
Dr. C. Montigel, Scientific Laboratories, CIBA-GEIGY Limited, Basle
Prof. D. P. Mertz, Dept. of Medicine, University of Freiburg i. Br.
Dr. G. Nagelschmidt, London
Dr. E. A. Newsholme, Dept. of Biochemistry, University of Oxford
Dr. C. V. Perrier, University Dept. of Therapeutics, Cantonal Hospital, Geneva
Prof. J. R. Quayle, Dept. of Microbiology, University of Sheffield
Dr. R. R. Race, Medical Research Council, Blood Group Research Unit, London
Dr. P. R. Raggatt, Dept. of Biochemistry, University of Oxford
Prof. S. Rauch, Cantonal Hospital, Olten
Dr. W. J. Reddy, Harvard Medical School, Boston, Mass.
Dr. Charlotte Rhoneimer, Zurich
Prof. W. Rick, Municipal Hospital, Düsseldorf
Dr. H. P. Rieder, Dept. of Neurology, University of Basle
Dr. W. Roth, Harvard Medical School, Boston, Mass.
Prof. G. Ruhenstroth, Max Planck Institute of Biochemistry, Munich
Dr. R. Sanger, Medical Research Council, Blood Group Research Unit, London
Prof. H. Sarre, Dept. of Medicine, University of Freiburg i. Br.
Dr. P. Schmid, Federal Institute of Forestry, Birmensdorf, Zurich
Dr. E. Schmidt and Prof. F. W. Schmidt, Dept. of Medicine, College of Medicine, Hanover
Dr. W. Schoop, Aggertal Clinic, Engelskirchen (Germany)
Dr. J. Solomon, Chestnut Hill, Mass.
Dr. J. Steinke, Joslin Research Laboratory, Boston, Mass.
Prof. U. Stille, Braunschweig
Dr. E. Strehler, Feldbach, Zurich
Prof. H. Studer, Dept. of Medicine, University of Berne
Dr. R. Veyrat, Dept. of Int. Medicine, Cantonal Hospital, Geneva
Dr. I. O. Walker, Dept. of Biochemistry, University of Oxford
E. Wechselberger, Isotope Laboratory, Dept. of Medicine, University of Tübingen
Prof. H. Weicker, Dept. of Human Genetics, University of Bonn
Dr. H.-M. Weiss, Braunschweig
Dr. Elsie M. Widdowson, Dept. of Experimental Medicine, University of Cambridge
Dr. J. R. Williamson, Dept. of Biophysics and Physical Biochemistry, The Johnson Foundation, Philadelphia, Pa.
Prof. O. Wiss, F. Hoffmann-La Roche & Co., Ltd., Basle
Dr. L. I. Woolf, Faculty of Medicine, University of British Columbia, Vancouver

The publisher and editors wish to thank the following scientific bodies, journals and publishing houses for permission to reproduce data or illustrations (on the pages given):

Academic Press Inc., New York (757); Acta Medica Scandinavica, Stockholm (548, 549); Acta Paediatrica Scandinavica, Stockholm (549); American Dental Association, Chicago, Ill. (709); American Medical Association, Chicago, Ill. (745); American Physiological Society, Bethesda, Md. (528, 547); American Review of Respiratory Disease, New York (550); American Society for Clinical Investigation, New York (557); American Statistical Association, Washington, D.C. (53, 56, 57); Association of American Physicians, Baltimore, Md. (535); Bell Telephone Laboratories, Murray Hill, N. J. (130); The Biometric Society, Tucson, Ariz. (50, 53, Appendix); Biometrika, London (47, 48, 49, 51, 52, 53); Birkhauser Verlag, Basle (131, Appendix); British Medical Bulletin, London (734); J. & A. Churchill Ltd., London (678, 715); Columbia University Press, New York (64, 65, 69); Federation of American Societies for Experimental Biology, Bethesda, Md. (541); Charles Griffin & Co. Ltd., London (66), Institute of Mathematical Statistics, Hayward, Calif. (53, 58, 129, 130); International Civil Aviation Organization, Montreal (252–254); The Lancet, London (534, 736); Lea & Febiger, Philadelphia, Pa. (565, 621), Smith-Corona Marchant, Inc., Oakland, Calif. (24); McGraw-Hill Book Company, New York (45, 46, 256); Masson & Cie, Editeurs, Paris (249); Methuen & Co. Ltd., London (686); The C.V. Mosby Company, St. Louis, Mo. (618); National Academy of Sciences, Washington, D.C. (256); National Research Council, Washington, D.C. (256); National Bureau of Standards, Washington, D.C. (29, 31, 64, 65, 69); Oliver & Boyd Ltd., Edinburgh (31, 54, 55, 616); Pathological Society of Great Britain and Ireland, London (616); Periodica, Copenhagen (748); Pitman Medical Publishing Company Limited, London (749); The Radiological Society of North America, Inc., New York (708); Royal College of Obstetricians and Gynaecologists, London (754); Schwabe & Co., Verlag, Basle (529); Skandinavisk Aktuarietidskrift, Stocksund, Sweden (36, 37); Smithsonian Institution Press, Washington, D.C. (256–258); E. & F.N. Spon Limited, London (18–20, 23, 284); Springer-Verlag, Berlin, Heidelberg, New York (40, 41, 532, 533, 534, 535, 546, 548, 752); Stichting Mathematisch Centrum, Amsterdam (124–126); Georg Thieme Verlag, Stuttgart (292, 293, 707, Appendix); The University of Chicago Press, Chicago, Ill. (528); Urban & Schwarzenberg, Munich (484); Virginia Polytechnic Institute, Blacksburg, Va. (50); World Health Organization, Geneva (759–764); John Wiley & Sons, Inc., New York (279, 556); The Williams & Wilkins Company, Baltimore, Md. (547, 562, 569).

Contents

Contents

Notes for the guidance of users

Apart from the main contents (above) and general index (pages 765 et seq.) the user will find the contents of the chapter on 'Statistical Methods' on page 145, that of the chapters on 'Constituents of Living Matter' and 'Metabolism' on page 307; in addition there is a separate detailed index to the chapter on 'Statistical Methods' on pages 197–198.

Zero values are indicated by the figure 0 throughout the book. A dash (–) signifies that the value is unknown, and this sign should on no account be interpreted as a zero value.

As a rule, the meanings of symbols and abbreviations are given where they first occur. For units of measurement an alphabetical list is available on page 199.

In the numerical tables, a point over the last figure (or figures) indicates a recurring figure (or figures), thus

$$1.\dot{6} = 1.666\,666\ldots$$
$$1.65\dot{2}\dot{7}\dot{8} = 1.652\,782\,782\,78\ldots$$

In general the number of places given has been dictated by the space available. The user should abstract as many as he needs and round off accordingly.

Exact values have been distinguished from rounded-off values by printing the last figure in **bold-face** type. Thus, 1.125**7** would be the rounded-off value of, say, 1.1257354 . . ., while 1.125**7** is an exact number. This notation is used in particular for the arbitrarily defined values of constants.

When they have been calculated according to statistical procedures (usually as mean value $\pm$ 2 standard deviations), normal ranges are given under the heading '95% range' (note that this practice differs from that adopted in previous editions).

For obvious reasons we have had to restrict bibliographical references to a representative selection of recently published original papers and reviews. In fields where research activity is currently high a rather fuller bibliography is given. The abbreviations used in the literature references are those recommended by the UNESCO and WHO (*World Medical Periodicals*, World Medical Association, New York, 1961).

Additional copies of the appendices in the inside back cover of this book may be obtained by application to CIBA-GEIGY Limited, PH 6.44, CH-4055 Basle, Switzerland.

Mathematical constants

Bernoulli numbers

n	B_n
1	1/ 6
2	1/ 30
3	1/ 42
4	1/ 30
5	5/ 66
6	691/2730
7	7/ 6
8	3617/ 510
9	43867/ 798
10	1 74611/ 330
11	8 54513/ 138
12	2363 64091/2730
13	85 53103/ 6

Euler numbers

n	E_n
1	1
2	5
3	61
4	1385
5	50521
6	27 02765
7	1993 60981
8	1 93915 12145
9	240 48796 75441
10	37037 11882 37525
11	69 34887 43931 37901
12	15514 53416 35570 86905
13	40 87072 50929 31238 92361

Prime numbers < 100

Number	$\log_{10}$ (mantissa)
2	30102 99956 63981 19521
3	47712 12547 19662 43730
5	69897 00043 36018 80479
7	84509 80400 14256 83071
11	04139 26851 58225 04075
13	11394 33523 06836 76921
17	23044 89213 78273 92854
19	27875 36009 52828 96154
23	36172 78360 17592 87887
29	46239 79978 98956 08733
31	49136 16938 34272 67967
37	56820 17240 66994 99681
41	61278 38567 19735 49451
43	63346 84555 79586 52641
47	67209 78579 35717 46441
53	72427 58696 00789 04563
59	77085 20116 42144 19026
61	78532 98350 10767 03389
67	82607 48027 00826 43415
71	85125 83487 19075 28609
73	86332 28601 20455 90107
79	89762 70912 90441 42799
83	91907 80923 76073 90383
89	94939 00066 44912 78472
97	98677 17342 66244 85178

Constants

Constant	Value	$\log_{10}$
π	3.14159 26535 89793 23846	0.49714 98726 94133 85435
π^2	9.86960 44010 89358 61883	0.99429 97453 88267 70870
$(2\pi)^{-1/2}$	0.39894 22804 01432 67794	0.60091 00658 20942 47522–1
e	2.71828 18284 59045 23536	= M
$M = \log_{10} e = \lg e$	0.43429 44819 03251 82765	
$1/M = \log_e 10 = \ln 10$	2.30258 50929 94045 68402	
γ (EULER's constant)	0.57721 56649 01532 86061	0.76133 81087 83167 61054–1

Greek alphabet

Greek character				Greek name	Roman equivalent	
A	α	*A*	α	alpha	A	a
B	β	*B*	β	beta	B	b
Γ	γ	Γ	γ	gamma	G	g
Δ	δ	Δ	δ	delta	D	d
E	ε, ϵ	*E*	ε, ϵ	epsilon	Ĕ	ĕ
Z	ζ	*Z*	ζ	zeta	Z	z
H	η	*H*	η	eta	Ē	ē
Θ	ϑ, θ	Θ	ϑ, θ	theta	Th	th
I	ι	*I*	ι	iota	I	i
K	$\varkappa, \kappa$	*K*	$\varkappa, \kappa$	kappa	K	k
Λ	λ	Λ	λ	lambda	L	l
M	μ	*M*	μ	mu	M	m
N	ν	*N*	ν	nu	N	n
Ξ	ξ	Ξ	ξ	xi	X	x
O	o	*O*	o	omicron	Ŏ	ŏ
Π	π, ϖ	Π	π, ϖ	pi	P	p
P	ρ	*P*	ϱ	rho	R	r
Σ	σ, ς	Σ	σ, ς	sigma	S	s
T	τ	*T*	τ	tau	T	t
Υ	υ	*Y*	υ	upsilon	Y	y
Φ	φ, ϕ	Φ	φ, ϕ	phi	Ph	ph
X	χ	*X*	χ	chi	Ch	ch
Ψ	ψ	Ψ	ψ	psi	Ps	ps
Ω	ω	Ω	ω	omega	Ō	ō

Prefixes and symbols for decimal multiples and submultiples of units[†]

Power of ten	Prefix	Symbol
10^{12}	tera	T
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{2}	hecto	h
10^{1}	deca*	da
10^{-1}	deci	d
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n
10^{-12}	pico	p
10^{-15}	femto	f
10^{-18}	atto	a

* Also 'deka'.

† Conférence générale des Poids et Mesures, *Comptes rendus des séances de la 11e Conférence générale des Poids et Mesures*, Paris 1960, Gauthier-Villars, Paris, 1961, page 87; *Comptes rendus des séances de la 12e Conférence générale des Poids et Mesures*, Paris 1964, Gauthier-Villars, Paris, 1964, page 94.

x	$\log x$										Proportional parts								
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
100	0000	0004	0009	0013	0017	0022	0026	0030	0035	0039	0	1	1	2	2	3	3	3	4
101	0043	0048	0052	0056	0060	0065	0069	0073	0077	0082	0	1	1	2	2	3	3	3	4
102	0086	0090	0095	0099	0103	0107	0111	0116	0120	0124	0	1	1	2	2	3	3	3	4
103	0128	0133	0137	0141	0145	0149	0154	0158	0162	0166	0	1	1	2	2	3	3	3	4
104	0170	0175	0179	0183	0187	0191	0195	0199	0204	0208	0	1	1	2	2	2	3	3	4
105	0212	0216	0220	0224	0228	0233	0237	0241	0245	0249	0	1	1	2	2	2	3	3	4
106	0253	0257	0261	0265	0269	0273	0278	0282	0286	0290	0	1	1	2	2	2	3	3	4
107	0294	0298	0302	0306	0310	0314	0318	0322	0326	0330	0	1	1	2	2	2	3	3	4
108	0334	0338	0342	0346	0350	0354	0358	0362	0366	0370	0	1	1	2	2	2	3	3	4
109	0374	0378	0382	0386	0390	0394	0398	0402	0406	0410	0	1	1	2	2	2	3	3	4
110	0000	0043	0086	0128	0170	0212	0253	0294	0334	0374	4	8	12	17	21	25	29	33	37
111	0414	0453	0492	0531	0569	0607	0645	0682	0719	0755	4	8	11	15	19	23	26	30	34
112	0792	0828	0864	0899	0934	0969	1004	1038	1072	1106	3	7	10	14	17	21	24	28	31
113	1139	1173	1206	1239	1271	1303	1335	1367	1399	1430	3	6	10	13	16	19	23	26	29
114	1461	1492	1523	1553	1584	1614	1644	1673	1703	1732	3	6	9	12	15	18	21	24	27
115	1761	1790	1818	1847	1875	1903	1931	1959	1987	2014	3	6	8	11	14	17	20	22	25
116	2041	2068	2095	2122	2148	2175	2201	2227	2253	2279	3	5	8	11	13	16	18	21	24
117	2304	2330	2355	2380	2405	2430	2455	2480	2504	2529	2	5	7	10	12	15	17	20	22
118	2553	2577	2601	2625	2648	2672	2695	2718	2742	2765	2	5	7	9	12	14	16	19	21
119	2788	2810	2833	2856	2878	2900	2923	2945	2967	2989	2	4	7	9	11	13	16	18	20
120	3010	3032	3054	3075	3096	3118	3139	3160	3181	3201	2	4	6	8	11	13	15	17	19
121	3222	3243	3263	3284	3304	3324	3345	3365	3385	3404	2	4	6	8	10	12	14	16	18
122	3424	3444	3464	3483	3502	3522	3541	3560	3579	3598	2	4	6	8	10	12	14	15	17
123	3617	3636	3655	3674	3692	3711	3729	3747	3766	3784	2	4	6	7	9	11	13	15	17
124	3802	3820	3838	3856	3874	3892	3909	3927	3945	3962	2	4	5	7	9	11	12	14	16
125	3979	3997	4014	4031	4048	4065	4082	4099	4116	4133	2	3	5	7	9	10	12	14	15
126	4150	4166	4183	4200	4216	4232	4249	4265	4281	4298	2	3	5	7	8	10	11	13	15
127	4314	4330	4346	4362	4378	4393	4409	4425	4440	4456	2	3	5	6	8	9	11	13	14
128	4472	4487	4502	4518	4533	4548	4564	4579	4594	4609	2	3	5	6	8	9	11	12	14
129	4624	4639	4654	4669	4683	4698	4713	4728	4742	4757	1	3	4	6	7	9	10	12	13
130	4771	4786	4800	4814	4829	4843	4857	4871	4886	4900	1	3	4	6	7	9	10	11	13
131	4914	4928	4942	4955	4969	4983	4997	5011	5024	5038	1	3	4	6	7	8	10	11	12
132	5051	5065	5079	5092	5105	5119	5132	5145	5159	5172	1	3	4	5	7	8	9	11	12
133	5185	5198	5211	5224	5237	5250	5263	5276	5289	5302	1	3	4	5	6	8	9	10	12
134	5315	5328	5340	5353	5366	5378	5391	5403	5416	5428	1	3	4	5	6	8	9	10	11
135	5441	5453	5465	5478	5490	5502	5514	5527	5539	5551	1	2	4	5	6	7	9	10	11
136	5563	5575	5587	5599	5611	5623	5635	5647	5658	5670	1	2	4	5	6	7	8	10	11
137	5682	5694	5705	5717	5729	5740	5752	5763	5775	5786	1	2	3	5	6	7	8	9	10
138	5798	5809	5821	5832	5843	5855	5866	5877	5888	5899	1	2	3	5	6	7	8	9	10
139	5911	5922	5933	5944	5955	5966	5977	5988	5999	6010	1	2	3	4	5	7	8	9	10
140	6021	6031	6042	6053	6064	6075	6085	6096	6107	6117	1	2	3	4	5	6	8	9	10
141	6128	6138	6149	6160	6170	6180	6191	6201	6212	6222	1	2	3	4	5	6	7	8	9
142	6232	6243	6253	6263	6274	6284	6294	6304	6314	6325	1	2	3	4	5	6	7	8	9
143	6335	6345	6355	6365	6375	6385	6395	6405	6415	6425	1	2	3	4	5	6	7	8	9
144	6435	6444	6454	6464	6474	6484	6493	6503	6513	6522	1	2	3	4	5	6	7	8	9
145	6532	6542	6551	6561	6571	6580	6590	6599	6609	6618	1	2	3	4	5	6	7	8	9
146	6628	6637	6646	6656	6665	6675	6684	6693	6702	6712	1	2	3	4	5	6	7	7	8
147	6721	6730	6739	6749	6758	6767	6776	6785	6794	6803	1	2	3	4	5	5	6	7	8
148	6812	6821	6830	6839	6848	6857	6866	6875	6884	6893	1	2	3	4	4	5	6	7	8
149	6902	6911	6920	6928	6937	6946	6955	6964	6972	6981	1	2	3	4	4	5	6	7	8
150	6990	6998	7007	7016	7024	7033	7042	7050	7059	7067	1	2	3	3	4	5	6	7	8
151	7076	7084	7093	7101	7110	7118	7126	7135	7143	7152	1	2	3	3	4	5	6	7	8
152	7160	7168	7177	7185	7193	7202	7210	7218	7226	7235	1	2	2	3	4	5	6	7	7
153	7243	7251	7259	7267	7275	7284	7292	7300	7308	7316	1	2	2	3	4	5	6	6	7
154	7324	7332	7340	7348	7356	7364	7372	7380	7388	7396	1	2	2	3	4	5	6	6	7
155	7404	7412	7419	7427	7435	7443	7451	7459	7466	7474	1	2	2	3	4	5	5	6	7
156	7482	7490	7497	7505	7513	7520	7528	7536	7543	7551	1	2	2	3	4	5	5	6	7
157	7559	7566	7574	7582	7589	7597	7604	7612	7619	7627	1	2	2	3	4	5	5	6	7
158	7634	7642	7649	7657	7664	7672	7679	7686	7694	7701	1	1	2	3	4	4	5	6	7
159	7709	7716	7723	7731	7738	7745	7752	7760	7767	7774	1	1	2	3	4	4	5	6	7
160	7782	7789	7796	7803	7810	7818	7825	7832	7839	7846	1	1	2	3	4	4	5	6	6
161	7853	7860	7868	7875	7882	7889	7896	7903	7910	7917	1	1	2	3	4	4	5	6	6
162	7924	7931	7938	7945	7952	7959	7966	7973	7980	7987	1	1	2	3	3	4	5	6	6
163	7993	8000	8007	8014	8021	8028	8035	8041	8048	8055	1	1	2	3	3	4	5	5	6
164	8062	8069	8075	8082	8089	8096	8102	8109	8116	8122	1	1	2	3	3	4	5	5	6
165	8129	8136	8142	8149	8156	8162	8169	8176	8182	8189	1	1	2	3	3	4	5	5	6
166	8195	8202	8209	8215	8222	8228	8235	8241	8248	8254	1	1	2	3	3	4	5	5	6
167	8261	8267	8274	8280	8287	8293	8299	8306	8312	8319	1	1	2	3	3	4	5	5	6
168	8325	8331	8338	8344	8351	8357	8363	8370	8376	8382	1	1	2	3	3	4	4	5	6
169	8388	8395	8401	8407	8414	8420	8426	8432	8439	8445	1	1	2	2	3	4	4	5	6
170	8451	8457	8463	8470	8476	8482	8488	8494	8500	8506	1	1	2	2	3	4	4	5	6
171	8513	8519	8525	8531	8537	8543	8549	8555	8561	8567	1	1	2	2	3	4	4	5	5
172	8573	8579	8585	8591	8597	8603	8609	8615	8621	8627	1	1	2	2	3	4	4	5	5
173	8633	8639	8645	8651	8657	8663	8669	8675	8681	8686	1	1	2	2	3	4	4	5	5
174	8692	8698	8704	8710	8716	8722	8727	8733	8739	8745	1	1	2	2	3	4	4	5	5
175	8751	8756	8762	8768	8774	8779	8785	8791	8797	8802	1	1	2	2	3	3	4	5	5
176	8808	8814	8820	8825	8831	8837	8842	8848	8854	8859	1	1	2	2	3	3	4	5	5
177	8865	8871	8876	8882	8887	8893	8899	8904	8910	8915	1	1	2	2	3	3	4	4	5
178	8921	8927	8932	8938	8943	8949	8954	8960	8965	8971	1	1	2	2	3	3	4	4	5
179	8976	8982	8987	8993	8998	9004	9009	9015	9020	9025	1	1	2	2	3	3	4	4	5
180	9031	9036	9042	9047	9053	9058	9063	9069	9074	9079	1	1	2	2	3	3	4	4	5
181	9085	9090	9096	9101	9106	9112	9117	9122	9128	9133	1	1	2	2	3	3	4	4	5
182	9138	9143	9149	9154	9159	9165	9170	9175	9180	9186	1	1	2	2	3	3	4	4	5
183	9191	9196	9201	9206	9212	9217	9222	9227	9232	9238	1	1	2	2	3	3	4	4	5
184	9243	9248	9253	9258	9263	9269	9274	9279	9284	9289	1	1	2	2	3	3	4	4	5
185	9294	9299	9304	9309	9315	9320	9325	9330	9335	9340	1	1	2	2	3	3	4	4	5
186	9345	9350	9355	9360	9365	9370	9375	9380	9385	9390	1	1	2	2	3	3	4	4	5
187	9395	9400	9405	9410	9415	9420	9425	9430	9435	9440	0	1	1	2	2	3	3	4	4
188	9445	9450	9455	9460	9465	9469	9474	9479	9484	9489	0	1	1	2	2	3	3	4	4
189	9494	9499	9504	9509	9513	9518	9523	9528	9533	9538	0	1	1	2	2	3	3	4	4
190	9542	9547	9552	9557	9562	9566	9571	9576	9581	9586	0	1	1	2	2	3	3	4	4
191	9590	9595	9600	9605	9609	9614	9619	9624	9628	9633	0	1	1	2	2	3	3	4	4
192	9638	9643	9647	9652	9657	9661	9666	9671	9675	9680	0	1	1	2	2	3	3	4	4
193	9685	9689	9694	9699	9703	9708	9713	9717	9722	9727	0	1	1	2	2	3	3	4	4
194	9731	9736	9741	9745	9750	9754	9759	9763	9768	9773	0	1	1	2	2	3	3	4	4
195	9777	9782	9786	9791	9795	9800	9805	9809	9814	9818	0	1	1	2	2	3	3	4	4
196	9823	9827	9832	9836	9841	9845	9850	9854	9859	9863	0	1	1	2	2	3	3	4	4
197	9868	9872	9877	9881	9886	9890	9894	9899	9903	9908	0	1	1	2	2	3	3	4	4
198	9912	9917	9921	9926	9930	9934	9939	9943	9948	9952	0	1	1	2	2	3	3	4	4
199	9956	9961	9965	9969	9974	9978	9983	9987	9991	9996	0	1	1	2	2	3	3	3	4

log x	x										Proportional parts								
	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
.00	1000	1002	1005	1007	1009	1012	1014	1016	1019	1021	0	0	1	1	1	1	2	2	2
.01	1023	1026	1028	1030	1033	1035	1038	1040	1042	1045	0	0	1	1	1	1	2	2	2
.02	1047	1050	1052	1054	1057	1059	1062	1064	1067	1069	0	0	1	1	1	1	2	2	2
.03	1072	1074	1076	1079	1081	1084	1086	1089	1091	1094	0	0	1	1	1	1	2	2	2
.04	1096	1099	1102	1104	1107	1109	1112	1114	1117	1119	0	1	1	1	1	2	2	2	2
.05	1122	1125	1127	1130	1132	1135	1138	1140	1143	1146	0	1	1	1	1	2	2	2	2
.06	1148	1151	1153	1156	1159	1161	1164	1167	1169	1172	0	1	1	1	1	2	2	2	2
.07	1175	1178	1180	1183	1186	1189	1191	1194	1197	1199	0	1	1	1	1	2	2	2	2
.08	1202	1205	1208	1211	1213	1216	1219	1222	1225	1227	0	1	1	1	1	2	2	2	3
.09	1230	1233	1236	1239	1242	1245	1247	1250	1253	1256	0	1	1	1	1	2	2	2	3
.10	1259	1262	1265	1268	1271	1274	1276	1279	1282	1285	0	1	1	1	1	2	2	2	3
.11	1288	1291	1294	1297	1300	1303	1306	1309	1312	1315	0	1	1	1	2	2	2	2	3
.12	1318	1321	1324	1327	1330	1334	1337	1340	1343	1346	0	1	1	1	2	2	2	2	3
.13	1349	1352	1355	1358	1361	1365	1368	1371	1374	1377	0	1	1	1	2	2	2	3	3
.14	1380	1384	1387	1390	1393	1396	1400	1403	1406	1409	0	1	1	1	2	2	2	3	3
.15	1413	1416	1419	1422	1426	1429	1432	1435	1439	1442	0	1	1	1	2	2	2	3	3
.16	1445	1449	1452	1455	1459	1462	1466	1469	1472	1476	0	1	1	1	2	2	2	3	3
.17	1479	1483	1486	1489	1493	1496	1500	1503	1507	1510	0	1	1	1	2	2	2	3	3
.18	1514	1517	1521	1524	1528	1531	1535	1538	1542	1545	0	1	1	1	2	2	2	3	3
.19	1549	1552	1556	1560	1563	1567	1570	1574	1578	1581	0	1	1	1	2	2	3	3	3
.20	1585	1589	1592	1596	1600	1603	1607	1611	1614	1618	0	1	1	1	2	2	3	3	3
.21	1622	1626	1629	1633	1637	1641	1644	1648	1652	1656	0	1	1	2	2	2	3	3	3
.22	1660	1663	1667	1671	1675	1679	1683	1687	1690	1694	0	1	1	2	2	2	3	3	3
.23	1698	1702	1706	1710	1714	1718	1722	1726	1730	1734	0	1	1	2	2	2	3	3	4
.24	1738	1742	1746	1750	1754	1758	1762	1766	1770	1774	0	1	1	2	2	2	3	3	4
.25	1778	1782	1786	1791	1795	1799	1803	1807	1811	1816	0	1	1	2	2	2	3	3	4
.26	1820	1824	1828	1832	1837	1841	1845	1849	1854	1858	0	1	1	2	2	3	3	3	4
.27	1862	1866	1871	1875	1879	1884	1888	1892	1897	1901	0	1	1	2	2	3	3	3	4
.28	1905	1910	1914	1919	1923	1928	1932	1936	1941	1945	0	1	1	2	2	3	3	4	4
.29	1950	1954	1959	1963	1968	1972	1977	1982	1986	1991	0	1	1	2	2	3	3	4	4
.30	1995	2000	2004	2009	2014	2018	2023	2028	2032	2037	0	1	1	2	2	3	3	4	4
.31	2042	2046	2051	2056	2061	2065	2070	2075	2080	2084	0	1	1	2	2	3	3	4	4
.32	2089	2094	2099	2104	2109	2113	2118	2123	2128	2133	0	1	1	2	2	3	3	4	4
.33	2138	2143	2148	2153	2158	2163	2168	2173	2178	2183	0	1	1	2	2	3	3	4	4
.34	2188	2193	2198	2203	2208	2213	2218	2223	2228	2234	1	1	2	2	3	3	4	4	5
.35	2239	2244	2249	2254	2259	2265	2270	2275	2280	2286	1	1	2	2	3	3	4	4	5
.36	2291	2296	2301	2307	2312	2317	2323	2328	2333	2339	1	1	2	2	3	3	4	4	5
.37	2344	2350	2355	2360	2366	2371	2377	2382	2388	2393	1	1	2	2	3	3	4	4	5
.38	2399	2404	2410	2415	2421	2427	2432	2438	2443	2449	1	1	2	2	3	3	4	4	5
.39	2455	2460	2466	2472	2477	2483	2489	2495	2500	2506	1	1	2	2	3	3	4	5	5
.40	2512	2518	2523	2529	2535	2541	2547	2553	2559	2564	1	1	2	2	3	4	4	5	5
.41	2570	2576	2582	2588	2594	2600	2606	2612	2618	2624	1	1	2	2	3	4	4	5	5
.42	2630	2636	2642	2649	2655	2661	2667	2673	2679	2685	1	1	2	2	3	4	4	5	6
.43	2692	2698	2704	2710	2716	2723	2729	2735	2742	2748	1	1	2	3	3	4	4	5	6
.44	2754	2761	2767	2773	2780	2786	2793	2799	2805	2812	1	1	2	3	3	4	4	5	6
.45	2818	2825	2831	2838	2844	2851	2858	2864	2871	2877	1	1	2	3	3	4	5	5	6
.46	2884	2891	2897	2904	2911	2917	2924	2931	2938	2944	1	1	2	3	3	4	5	5	6
.47	2951	2958	2965	2972	2979	2985	2992	2999	3006	3013	1	1	2	3	3	4	5	5	6
.48	3020	3027	3034	3041	3048	3055	3062	3069	3076	3083	1	1	2	3	4	4	5	6	6
.49	3090	3097	3105	3112	3119	3126	3133	3141	3148	3155	1	1	2	3	4	4	5	6	6
.50	3162	3170	3177	3184	3192	3199	3206	3214	3221	3228	1	1	2	3	4	4	5	6	7
.51	3236	3243	3251	3258	3266	3273	3281	3289	3296	3304	1	2	2	3	4	5	5	6	7
.52	3311	3319	3327	3334	3342	3350	3357	3365	3373	3381	1	2	2	3	4	5	5	6	7
.53	3388	3396	3404	3412	3420	3428	3436	3443	3451	3459	1	2	2	3	4	5	6	6	7
.54	3467	3475	3483	3491	3499	3508	3516	3524	3532	3540	1	2	2	3	4	5	6	6	7
.55	3548	3556	3565	3573	3581	3589	3597	3606	3614	3622	1	2	2	3	4	5	6	7	7
.56	3631	3639	3648	3656	3664	3673	3681	3690	3698	3707	1	2	3	3	4	5	6	7	8
.57	3715	3724	3733	3741	3750	3758	3767	3776	3784	3793	1	2	3	3	4	5	6	7	8
.58	3802	3811	3819	3828	3837	3846	3855	3864	3873	3882	1	2	3	4	4	5	6	7	8
.59	3890	3899	3908	3917	3926	3936	3945	3954	3963	3972	1	2	3	4	5	5	6	7	8
.60	3981	3990	3999	4009	4018	4027	4036	4046	4055	4064	1	2	3	4	5	6	6	7	8
.61	4074	4083	4093	4102	4111	4121	4130	4140	4150	4159	1	2	3	4	5	6	7	8	9
.62	4169	4178	4188	4198	4207	4217	4227	4236	4246	4256	1	2	3	4	5	6	7	8	9
.63	4266	4276	4285	4295	4305	4315	4325	4335	4345	4355	1	2	3	4	5	6	7	8	9
.64	4365	4375	4385	4395	4406	4416	4426	4436	4446	4457	1	2	3	4	5	6	7	8	9
.65	4467	4477	4487	4498	4508	4519	4529	4539	4550	4560	1	2	3	4	5	6	7	8	9
.66	4571	4581	4592	4603	4613	4624	4634	4645	4656	4667	1	2	3	4	5	6	7	9	10
.67	4677	4688	4699	4710	4721	4732	4742	4753	4764	4775	1	2	3	4	5	7	8	9	10
.68	4786	4797	4808	4819	4831	4842	4853	4864	4875	4887	1	2	3	4	6	7	8	9	10
.69	4898	4909	4920	4932	4943	4955	4966	4977	4989	5000	1	2	3	5	6	7	8	9	10
.70	5012	5023	5035	5047	5058	5070	5082	5093	5105	5117	1	2	4	5	6	7	8	9	11
.71	5129	5140	5152	5164	5176	5188	5200	5212	5224	5236	1	2	4	5	6	7	8	10	11
.72	5248	5260	5272	5284	5297	5309	5321	5333	5346	5358	1	2	4	5	6	7	9	10	11
.73	5370	5383	5395	5408	5420	5433	5445	5458	5470	5483	1	3	4	5	6	8	9	10	11
.74	5495	5508	5521	5534	5546	5559	5572	5585	5598	5610	1	3	4	5	6	8	9	10	12
.75	5623	5636	5649	5662	5675	5689	5702	5715	5728	5741	1	3	4	5	7	8	9	10	12
.76	5754	5768	5781	5794	5808	5821	5834	5848	5861	5875	1	3	4	5	7	8	9	11	12
.77	5888	5902	5916	5929	5943	5957	5970	5984	5998	6012	1	3	4	5	7	8	10	11	12
.78	6026	6039	6053	6067	6081	6095	6109	6124	6138	6152	1	3	4	6	7	8	10	11	13
.79	6166	6180	6194	6209	6223	6237	6252	6266	6281	6295	1	3	4	6	7	9	10	11	13
.80	6310	6324	6339	6353	6368	6383	6397	6412	6427	6442	1	3	4	6	7	9	10	12	13
.81	6457	6471	6486	6501	6516	6531	6546	6561	6577	6592	2	3	5	6	8	9	11	12	14
.82	6607	6622	6637	6653	6668	6683	6699	6714	6730	6745	2	3	5	6	8	9	11	12	14
.83	6761	6776	6792	6808	6823	6839	6855	6871	6887	6902	2	3	5	6	8	9	11	13	14
.84	6918	6934	6950	6966	6982	6998	7015	7031	7047	7063	2	3	5	6	8	10	11	13	15
.85	7079	7096	7112	7129	7145	7161	7178	7194	7211	7228	2	3	5	7	8	10	12	13	15
.86	7244	7261	7278	7295	7311	7328	7345	7362	7379	7396	2	3	5	7	8	10	12	13	15
.87	7413	7430	7447	7464	7482	7499	7516	7534	7551	7568	2	3	5	7	9	10	12	14	16
.88	7586	7603	7621	7638	7656	7674	7691	7709	7727	7745	2	4	5	7	9	11	12	14	16
.89	7762	7780	7798	7816	7834	7852	7870	7889	7907	7925	2	4	5	7	9	11	13	14	16
.90	7943	7962	7980	7998	8017	8035	8054	8072	8091	8110	2	4	6	7	9	11	13	15	17
.91	8128	8147	8166	8185	8204	8222	8241	8260	8279	8299	2	4	6	8	9	11	13	15	17
.92	8318	8337	8356	8375	8395	8414	8433	8453	8472	8492	2	4	6	8	10	12	14	15	17
.93	8511	8531	8551	8570	8590	8610	8630	8650	8670	8690	2	4	6	8	10	12	14	16	18
.94	8710	8730	8750	8770	8790	8810	8831	8851	8872	8892	2	4	6	8	10	12	14	16	18
.95	8913	8933	8954	8974	8995	9016	9036	9057	9078	9099	2	4	6	8	10	12	15	17	19
.96	9120	9141	9162	9183	9204	9226	9247	9268	9290	9311	2	4	6	8	11	13	15	17	19
.97	9333	9354	9376	9397	9419	9441	9462	9484	9506	9528	2	4	7	9	11	13	15	17	20
.98	9550	9572	9594	9616	9638	9661	9683	9705	9727	9750	2	4	7	9	11	13	16	18	20
.99	9772	9795	9817	9840	9863	9886	9908	9931	9954	9977	2	5	7	9	11	14	16	18	20

x	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.000	$-\infty$	−6.90776	−6.21461	−5.80914	−5.52146	−5.29832	−5.11600	−4.96185	−4.82831	−4.71053
010	−4.60517	−4.50986	−4.42285	−4.34281	−4.26870	−4.19971	−4.13517	−4.07454	−4.01738	−3.96332
020	−3.91202	−3.86323	−3.81671	−3.77226	−3.72970	−3.68888	−3.64966	−3.61192	−3.57555	54046
030	50656	47377	44202	41125	38139	35241	32424	29684	27017	24419
040	21888	19418.	17009	14656	12357	10109	07911	05761	03655	01593
0.050	−2.99573	−2.97593	−2.95651	−2.93746	−2.91877	−2.90042	−2.88240	−2.86470	−2.84731	−2.83022
060	81341	79688	78062	76462	74887	73337	71810	70306	68825	67365
070	65926	64508	63109	61730	60369	59027	57702	56395	55105	53831
080	52573	51331	50104	48891	47694	46510	45341	44185	43042	41912
090	40795	39690	38597	37516	36446	35388	34341	33304	32279	31264
0.100	−2.30259	−2.29263	−2.28278	−2.27303	−2.26336	−2.25379	−2.24432	−2.23493	−2.22562	−2.21641
110	20727	19823	18926	18037	17156	16282	15417	14558	13707	12863
120	12026	11196	10373	09557	08747	07944	07147	06357	05573	04794
130	04022	03256	02495	01741	00992	00248	−1.99510	−1.98777	−1.98050	−1.97328
140	−1.96611	−1.95900	−1.95193	−1.94491	−1.93794	−1.93102	92415	91732	91054	90381
0.150	−1.89712	−1.89048	−1.88387	−1.87732	−1.87080	−1.86433	−1.85790	−1.85151	−1.84516	−1.83885
160	83258	82635	82016	81401	80789	80181	79577	78976	78379	77786
170	77196	76609	76026	75446	74870	74297	73727	73161	72597	72037
180	71480	70926	70375	69827	69282	68740	68201	67665	67131	66601
190	66073	65548	65026	64507	63990	63476	62964	62455	61949	61445
0.200	−1.60944	−1.60445	−1.59949	−1.59455	−1.58964	−1.58475	−1.57988	−1.57504	−1.57022	−1.56542
210	56065	55590	55117	54646	54178	53712	53248	52786	52326	51868
220	51413	50959	50508	50058	49611	49165	48722	48281	47841	47403
230	46968	46534	46102	45672	45243	44817	44392	43970	43548	43129
240	42712	42296	41882	41469	41059	40650	40242	39837	39433	39030
0.250	−1.38629	−1.38230	−1.37833	−1.37437	−1.37042	−1.36649	−1.36258	−1.35868	−1.35480	−1.35093
260	34707	34323	33941	33560	33181	32803	32426	32051	31677	31304
270	30933	30564	30195	29828	29463	29098	28735	28374	28013	27654
280	27297	26940	26585	26231	25878	25527	25176	24827	24479	24133
290	23787	23443	23100	22758	22418	22078	21740	21402	21066	20731
0.300	−1.20397	−1.20065	−1.19733	−1.19402	−1.19073	−1.18744	−1.18417	−1.18091	−1.17766	−1.17441
310	17118	16796	16475	16155	15836	15518	15201	14885	14570	14256
320	13943	13631	13320	13010	12701	12393	12086	11780	11474	11170
330	10866	10564	10262	09961	09661	09362	09064	08767	08471	08176
340	07881	07587	07294	07002	06711	06421	06132	05843	05555	05268
0.350	−1.04982	−1.04697	−1.04412	−1.04129	−1.03846	−1.03564	−1.03282	−1.03002	−1.02722	−1.02443
360	02165	01888	01611	01335	01060	00786	00512	00239	−0.99967	−0.99696
370	−0.99425	−0.99155	−0.98886	−0.98618	−0.98350	−0.98083	−0.97817	−0.97551	97286	97022
380	96758	96496	96233	95972	95711	95451	95192	94933	94675	94418
390	94161	93905	93649	93395	93140	92887	92634	92382	92130	91879
0.400	−0.91629	−0.91379	−0.91130	−0.90882	−0.90634	−0.90387	−0.90140	−0.89894	−0.89649	−0.89404
410	89160	88916	88673	88431	88189	87948	87707	87467	87227	86988
420	86750	86512	86275	86038	85802	85567	85332	85097	84863	84630
430	84397	84165	83933	83702	83471	83241	83011	82782	82554	82326
440	82098	81871	81645	81419	81193	80968	80744	80520	80296	80073
0.450	−0.79851	−0.79629	−0.79407	−0.79186	−0.78966	−0.78746	−0.78526	−0.78307	−0.78089	−0.77871
460	77653	77436	77219	77003	76787	76572	76357	76143	75929	75715
470	75502	75290	75078	74866	74655	74444	74234	74024	73814	73605
480	73397	73189	72981	72774	72567	72361	72155	71949	71744	71539
490	71335	71131	70928	70725	70522	70320	70118	69917	69716	69515
0.500	−0.69315	−0.69115	−0.68916	−0.68717	−0.68518	−0.68320	−0.68122	−0.67924	−0.67727	−0.67531
510	67334	67139	66943	66748	66553	66359	66165	65971	65778	65585
520	65393	65201	65009	64817	64626	64436	64245	64055	63866	63677
530	63488	63299	63111	62923	62736	62549	62362	62176	61990	61804
540	61619	61434	61249	61065	60881	60697	60514	60331	60148	59966
0.550	−0.59784	−0.59602	−0.59421	−0.59240	−0.59059	−0.58879	−0.58699	−0.58519	−0.58340	−0.58161
560	57982	57803	57625	57448	57270	57093	56916	56740	56563	56387
570	56212	56037	55862	55687	55513	55339	55165	54991	54818	54645
580	54473	54300	54128	53957	53785	53614	53444	53273	53103	52933
590	52763	52594	52425	52256	52088	51919	51751	51584	51416	51249
0.600	−0.51083	−0.50916	−0.50750	−0.50584	−0.50418	−0.50253	−0.50088	−0.49923	−0.49758	−0.49594
610	49430	49266	49102	48939	48776	48613	48451	48289	48127	47965
620	47804	47642	47482	47321	47160	47000	46840	46681	46522	46362
630	46204	46045	45887	45728	45571	45413	45256	45099	44942	44785
640	44629	44473	44317	44161	44006	43850	43696	43541	43386	43232
0.650	−0.43078	−0.42925	−0.42771	−0.42618	−0.42465	−0.42312	−0.42159	−0.42007	−0.41855	−0.41703
660	41552	41400	41249	41098	40947	40797	40647	40497	40347	40197
670	40048	39899	39750	39601	39453	39304	39156	39008	38861	38713
680	38566	38419	38273	38126	37980	37834	37688	37542	37397	37251
690	37106	36962	36817	36673	36528	36384	36241	36097	35954	35810
0.700	−0.35667	−0.35525	−0.35382	−0.35240	−0.35098	−0.34956	−0.34814	−0.34672	−0.34531	−0.34390
710	34249	34108	33968	33827	33687	33547	33408	33268	33129	32989
720	32850	32712	32573	32435	32296	32158	32021	31883	31745	31608
730	31471	31334	31197	31061	30925	30788	30653	30517	30381	30246
740	30111	29975	29841	29706	29571	29437	29303	29169	29035	28902
0.750	−0.28768	−0.28635	−0.28502	−0.28369	−0.28236	−0.28104	−0.27971	−0.27839	−0.27707	−0.27575
760	27444	27312	27181	27050	26919	26788	26657	26527	26397	26266
770	26136	26007	25877	25748	25618	25489	25360	25231	25103	24974
780	24846	24718	24590	24462	24335	24207	24080	23953	23826	23699
790	23572	23446	23319	23193	23067	22941	22816	22690	22565	22439
0.800	−0.22314	−0.22189	−0.22065	−0.21940	−0.21816	−0.21691	−0.21567	−0.21443	−0.21319	−0.21196
810	21072	20949	20825	20702	20579	20457	20334	20212	20089	19967
820	19845	19723	19601	19480	19358	19237	19116	18995	18874	18754
830	18633	18513	18392	18272	18152	18032	17913	17793	17674	17554
840	17435	17316	17198	17079	16960	16842	16724	16605	16487	16370
0.850	−0.16252	−0.16134	−0.16017	−0.15900	−0.15782	−0.15665	−0.15548	−0.15432	−0.15315	−0.15199
860	15032	14966	14850	14734	14618	14503	14387	14272	14156	14041
870	13926	13811	13697	13582	13467	13353	13239	13125	13011	12897
880	12783	12670	12556	12443	12330	12217	12104	11991	11878	11766
890	11653	11541	11429	11317	11205	11093	10981	10870	10759	10647
0.900	−0.10536	−0.10425	−0.10314	−0.10203	−0.10093	−0.09982	−0.09872	−0.09761	−0.09651	−0.09541
910	09431	09321	09212	09102	08992	08883	08774	08665	08556	08447
920	08338	08230	08121	08013	07904	07796	07688	07580	07472	07365
930	07257	07150	07042	06935	06828	06721	06614	06507	06401	06294
940	06188	06081	05975	05869	05763	05657	05551	05446	05340	05235
0.950	−0.05129	−0.05024	−0.04919	−0.04814	−0.04709	−0.04604	−0.04500	−0.04395	−0.04291	−0.04186
960	04082	03978	03874	03770	03666	03563	03459	03356	03252	03149
970	03046	02943	02840	02737	02634	02532	02429	02327	02225	02122
980	02020	01918	01816	01715	01613	01511	01410	01309	01207	01106
990	01005	00904	00803	00702	00602	00501	00401	00300	00200	00100

* To find the natural logarithm ($\log_e$) of a number which is a power of ten less or greater than a number given in the table: if the number concerned is *less*, e.g., $^1/_{10}$ (10^{-1}), $^1/_{100}$ (10^{-2}), $^1/_{1000}$ (10^{-3}), etc., *subtract* from the given logarithm $\log_e 10$, $2 \log_e 10$, $3 \log_e 10$, etc.; if the number concerned is *greater*, e.g., 10 times (10^1), 100 times (10^2), 1000 times (10^3), etc., *add* to the given logarithm $\log_e 10$, $2 \log_e 10$, $3 \log_e 10$, etc. Examples: $\log_e 0.02 = \log_e 0.2 - \log_e 10$; $\log_e 2000 = \log_e 200 + \log_e 10$.