

HANDBOOK OF MATHEMATICAL FUNCTIONS

WITH FORMULAS, GRAPHS,
AND MATHEMATICAL TABLES

Edited by
Milton Abramowitz and Irene A. Stegun

DOVER PUBLICATIONS, INC., NEW YORK

Contents

	Page
Preface	III
Foreword	V
Introduction	IX
1. Mathematical Constants	1
DAVID S. LIEPMAN	
2. Physical Constants and Conversion Factors	5
A. G. McNISH	
3. Elementary Analytical Methods	9
MILTON ABRAMOWITZ	
4. Elementary Transcendental Functions	65
Logarithmic, Exponential, Circular and Hyperbolic Functions RUTH ZUCKER	
5. Exponential Integral and Related Functions	227
WALTER GAUTSCHI and WILLIAM F. CAHILL	
6. Gamma Function and Related Functions.	253
PHILIP J. DAVIS	
7. Error Function and Fresnel Integrals	295
WALTER GAUTSCHI	
8. Legendre Functions	331
IRENE A. STEGUN	
9. Bessel Functions of Integer Order	355
F. W. J. OLVER	
10. Bessel Functions of Fractional Order.	435
H. A. ANTOSIEWICZ	
11. Integrals of Bessel Functions	479
YUDELL L. LUKE	
12. Struve Functions and Related Functions	495
MILTON ABRAMOWITZ	
13. Confluent Hypergeometric Functions	503
LUCY JOAN SLATER	
14. Coulomb Wave Functions	537
MILTON ABRAMOWITZ	
15. Hypergeometric Functions	555
FRITZ OBERHETTINGER	
16. Jacobian Elliptic Functions and Theta Functions	567
L. M. MILNE-THOMSON	
17. Elliptic Integrals	587
L. M. MILNE-THOMSON	
18. Weierstrass Elliptic and Related Functions	627
THOMAS H. SOUTHARD	
19. Parabolic Cylinder Functions	685
J. C. P. MILLER	

	Page
20. Mathieu Functions	721
GERTRUDE BLANCH	
21. Spheroidal Wave Functions.	751
ARNOLD N. LOWAN	
22. Orthogonal Polynomials	771
URS W. HOCHSTRASSER	
23. Bernoulli and Euler Polynomials, Riemann Zeta Function	803
EMILIE V. HAYNSWORTH and KARL GOLDBERG	
24. Combinatorial Analysis	821
K. GOLDBERG, M. NEWMAN and E. HAYNSWORTH	
25. Numerical Interpolation, Differentiation and Integration	875
PHILIP J. DAVIS and IVAN POLONSKY	
26. Probability Functions	925
MARVIN ZELEN and NORMAN C. SEVERO	
27. Miscellaneous Functions	997
IRENE A. STEGUN	
28. Scales of Notation.	1011
S. PEAVY and A. SCHOPF	
29. Laplace Transforms	1019
Subject Index	1031
Index of Notations	1044