A-6	Chi-square distribution	(Fisher: *Statistical Methods for Research Workers*)
A-7	Critical values of F	(Wadsworth and Bryan)
A-8	Student's t distribution	(Fisher: *ibid.*)

Many problems are included between sections of each chapter; the ones marked with asterisks are the more difficult and more interesting, such as the one referred to above. A series of problems are included which give some idea of game theory.

Two review sections appear in this volume, one after Chapter 5 and another after Chapter 7. These reviews should be useful to both the teachers and students.

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22[L, M].—C. J. Ancker, Jr. & A. V. Gafarian, *The Function* $J(x, y) = \int_0^x \frac{\gamma(y, \xi)}{\xi}\, d\xi$*—Some Properties and a Table*, System Development Corporation Santa Monica, California, 1962, 36 p., 27.5 cm.

This report contains some analysis and a table of the function

$$J(x, y) = \int_0^x \frac{\gamma(y, \xi)}{\xi}\, d\xi, \qquad x \geqq 0, y > 0,$$

where

$$\gamma(y, \xi) = \int_0^\xi e^{-\eta}\, \eta^{y-1}\, d\eta$$

is the Incomplete Gamma-Function. The report is divided into four parts. The first part contains: (1) a recurrence relation in the variable y, (2) a closed expression for positive integer y, (3) definite integrals expressible in terms of the function, (4) some derivatives of the function, (5) a convergent power series expansion about $x = 0$, (6) an asymptotic expansion about infinity, (7) an approximation in closed form, and (8) the Laplace and Mellin transforms, treating y as a fixed parameter. The second part is a description of the computational technique used to obtain the table and a discussion of the accuracy of the table. The third part contains procedures for computing $J(x, y)$ outside the range of the table. Finally, in part four, there are some graphs and a table of $J(x, y)$ for x and $y = 0.1(0.1)10$ to six significant figures.

Author's Summary

23[L, M, X].—Wilfred Kaplan, *Operational Methods for Linear Systems*, Addison-Wesley Publishing Company, Inc., Reading, Massachusetts, 1962, xi + 577 p., 24 cm. Price $10.75.

This book treats in a careful, detailed manner the subject usually known as operational calculus. A long introductory chapter is devoted to linear differential equations; this is followed by a chapter treating such matters as the superposition principle, the transfer and frequency response functions, and stability. Then come chapters on functions of a complex variable, Fourier series, the Fourier integral, the Laplace transform, and stability. The last chapter treats in an interesting

manner time-variant linear systems, and there is an appendix on the operational calculus of Mikusiński. There are a great many exercises, with answers, and a conscientious student should be able to master the material even without the aid of a teacher. The printing is excellent.

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24[L].—WERNER E. KNOLLE & WILLIAM A. ALLEN, *Expansion of Elliptic Functions Tables*, 3 + 720 unnumbered sheets. Deposited in UMT File.

This large manuscript table of Jacobian elliptic functions constitutes an elaborate expansion of the first eight pages of the related Smithsonian tables [1]. The modular angle is now given over the range $\theta = 0(10'')2°$, in place of the original increment of 1°.

The format of the Smithsonian tables has been adopted for completeness, and the precision of 12D has been retained in the body of the tables.

In their explanatory text the authors state that each tabular value was computed independently on an IBM 7090 system. They claim that the existing computer program will suffice to produce results of comparable precision for values of the modular angle ranging up to 6°, and that further extension is possible through a slight modification of the program.

The original copy of these tables exists as an IBM listing on vellum paper, which can be reproduced inexpensively, according to the authors.

Comparison of the results of these new computations with the corresponding data in the Smithsonian tables revealed several serious errors in the latter; these are enumerated in the appropriate section of this issue.

J. W. W.

1. G. W. SPENCELEY & R. M. SPENCELEY, *Smithsonian Elliptic Functions Tables*, The Smithsonian Institution, Washington, D.C., 1947.

25[L, M].—A. V. H. MASKET & W. C. RODGERS, *Tables of Solid Angles:* I. *Solid Angle Subtended by a Circular Disc;* II. *Solid Angle Subtended by the Lateral Surface of a Right Circular Cylinder*, Office of Technical Services, Washington 25, D.C., July 1962, iii + 476 p., 26.5 cm. Price $5.00.

The two large tables comprising this publication contain, respectively, 125,000 and 112,500 values to 6 S (in floating-point form) of solid angles subtended by a circular disc and by the lateral surface of a right circular cylinder. The authors inform us that these tables are the result of a recalculation and enlargement, by use of a UNIVAC 1105 system, of *Tables of Solid Angles and Activations*, issued in November 1956 as a reproduction of Oak Ridge National Laboratory Report ORNL 2170.

All values in the tables are normalized to a unit radius of the disc or cylinder. The parameters are, then, the perpendicular distance z of the point above or below the plane of the disc, the distance ρ of the point from the axis of the disc or cylinder, and the height h of the cylinder. The solid angles in Table I are tabulated in steradians for $\rho = 0(0.05)6(0.25)16(0.5)35.5$ and $z = 0.02(0.02)5(0.04)10(0.2)20(0.4)100$; those in Table II, for $\rho = 1(0.05)6(0.25)16(0.5)35.5$ and $h = 0.02(0.02)5(0.04)10(0.2)20(0.4)100$.