Exercises in Mathematics, by J. Bass. Academic Press, 1966. xii + 459 pages. \$14.75.

This book is intended primarily for students of applied mathematics, physics and engineering. The problems considered are taken from such topics as sequences, series, definite integrals, uniform convergence, Fourier series and integrals, Fourier and Laplace transforms, line integrals and multiple integrals, complex variables, conformal mapping, special functions of applied mathematics, elliptic integrals, ordinary differential equations, integral equations, partial differential equations, boundary value problems, differential geometry, linear algebra, matrix calculus, vector and tensor analysis and the calculus of variations.

Unfortunately, it is basically due to the fact that such a large and diverse number of topics were considered that the book is of very little practical use. The examples chosen are in almost all cases of a very specialized nature and consequently do not successfully illustrate the underlying theory. Furthermore, the introductory statements for each section about the theory used in the problems are much too brief. A further disadvantage for students of applied mathematics is the fact that very rarely do the problems involve actual physical or engineering situations.

In the preface the author expresses hesitations about publishing a book of this nature. These hesitations are indeed well founded.

Charles Roth, McGill Uiversity

The theory of splines and their applications, by J.H. Ahlberg, E.N. Nilson and J.L. Walsh. Academic Press, New York, 1967. viii + 284 pages. \$13.50.

During the last decade a large number of articles were published dealing with either the theoretic or the applied aspects of the spline function theory. The spline function in its simplest form (cubic polynomial spline) is a twice continuously differentiable function on an interval $[a, b]$ with the property that for some subdivision of $[a, b]$, $x_o = a < x_1 < \ldots < x_n = b$ the function reduces to a cubic polynomial between any two of the "junction" points x_k, x_{k+1}. The amazing fact (first proved by Holladay) about cubic splines is that given $a = x_o < \ldots < x_n = b$ and reals $y_1, \ldots, y_n$ the minimum of $\int_a^b |f''(x)|^2 dx$ among all twice continuously differentiable functions f satisfying $f(x_j) = y_j$ $(j = 0, 1, \ldots, n)$ is attained by the cubic spline passing through the points (x_j, y_j) and having vanishing second derivatives at a and b.

https://doi.org/10.1017/S0008439500029647 Published online by Cambridge University Press