[**Martin-Löf**] P. Martin-Löf, *Constructive mathematics and computer programming*, Mathematical Logic and Programming Languages (C.A.R. Hoare and J. C. Shepherdson, eds.), Prentice-Hall, New Jersey, 1985.

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Holomorphic functions and integral representations in several complex variables, by R. Michael Range. Graduate Texts in Mathematics, Springer-Verlag, New York, Berlin, Heidelberg, Tokyo, 1986, xi + 386 pp., $49.50. ISBN 0-387-96259-x

Complex function theory of one variable can be developed on the basis of three different approaches.

(a) The (so-called) *Weierstrass* approach, namely the fact that holomorphic functions can be locally represented by their Taylor expansions. Here the basic properties of the ring $\mathscr{O}^{(1)}$ of convergent power series in one variable such as $\mathscr{O}^{(1)}$ being a principal ideal ring become important;

(b) The (so-called) *Riemann* approach, based on the fact that holomorphic functions can be characterized as those differentiable functions $f = g + ih$ in $z = x + iy$ satisfying the Cauchy-Riemann equations:

$$\frac{\partial f}{\partial \bar{z}} := \frac{1}{2}\left(\frac{\partial f}{\partial x} + i\frac{\partial f}{\partial y}\right) = 0. \tag{1}$$

Here the "good" properties of the system (1) of partial differential equations are the essential feature. Namely, it is elliptic, linear with constant coefficients and intimately related to the Laplace operator $\Delta = 4\partial^2/\partial z\partial\bar{z}$ with all its wonderful, well-known properties. Furthermore, (1) has as its natural geometric interpretation the conformality of biholomorphic maps.

(c) The (so-called) *Cauchy* approach, based on the Cauchy integral formula for holomorphic functions. The properties of the integral operator(s) with the Cauchy kernel are used as the most powerful tools from this point of view. In particular one has the formula

$$f(z) = \frac{1}{2\pi i}\int_{\partial\Omega}\frac{f(\zeta)}{\zeta - z}\,d\zeta + \frac{1}{2\pi i}\int_{\Omega}\frac{\partial f/\partial\bar{\zeta}}{\zeta - z}\,d\zeta\wedge d\bar{\zeta} \tag{2}$$

which holds for all domains $\Omega \Subset \mathbf{C}$ the boundary of which consists of a finite number of disjoint C^1 Jordan curves, for all $f \in C^1(\overline{\Omega})$ and for all $z \in \Omega$. It can be used very successfully in this approach.

(It should be pointed out that the association of the names of Weierstrass, Riemann and Cauchy with these approaches can be justified only partially from the historical viewpoint. For some interesting details about this see for instance [**27**].)

Most presentations of basic function theory use a pragmatic mixture of the approaches (a)–(c). It can, however, also be quite interesting to