I enjoyed reading the first edition of Stephen Fisher’s book and many of the comments which I made then still apply. Although some substantial alterations had been made before the second edition appeared in print, the bulk of the material remains essentially unchanged. The author designed it as an introductory volume on complex function theory and applications and he has judged his level well and has produced a very comprehensive account of the subject. The text includes some elementary sections on complex numbers and complex functions and unlike many of the more sophisticated volumes on complex analysis these topics are not skimmed. The space devoted to elementary ideas has not been gained at the expense of mathematical rigour. Analytic concepts such as open sets, interior points and connectedness are properly defined and not just glossed over. At the same time a very substantial proportion of the text is taken up with a wide ranging discussion of applications of the theory. Throughout the book the author’s style is easy and relaxed and as a result the volume is very pleasant to read and gives the impression that the subject matter is reasonably straightforward. The notes at the end of each chapter give additional background reading and are very useful.

The first two chapters together with the beginning of the third chapter contain most of the material which would normally be considered suitable for an introductory course in complex functions and the level seems entirely suitable for second year undergraduates taking an honours course in mathematics.

The first edition contained in the body of the text two versions of Cauchy’s Theorem. One assumed the continuity of the derivative and deduced the result from Green’s Theorem, whereas the other used the Goursat approach in which no such assumption is made. In the second edition, however, the author relegates the second approach to an optional starred section towards the end of the chapter. Either way the ordering of the topics is justifiable and it is entirely a matter of personal judgement which of these the reader prefers. A more significant change with which I would take issue concerns the proof of Cauchy’s Integral Formulae. The original proof in the first edition, is in my opinion, more in the spirit of complex function theory than the deduction from Green’s Theorem which replaces it in the second edition and it is a pity that the change has been made at all. The revamping of some of the exercises is on the whole beneficial. The alterations have sometimes necessitated a change to the layout in the second edition and this is not always a change for the better. For example the placing of the diagram at the bottom of page 87 is particularly infelicitous as a quick comparison with the first edition will immediately reveal.

In both editions the author clearly sets out to achieve the same two goals. They are the presentation of a comprehensive account of complex function theory itself and a demonstration of the important rôle it plays in the solution of many problems. The volume, therefore, includes substantial sections on applications. Some readers, however, may feel that they would have preferred a shorter account which concentrated on just one aspect. There were certainly points at which I would have preferred the author to continue developing the theory rather than breaking off to explore some applications before resuming the theory. Possibly a reader with a more practical turn of mind might have preferred more emphasis on applications and less on theory.

The table of conformal mappings in Appendix 2 is a very useful addition to the volume and the detailed answers to the odd numbered exercises are a very welcome bonus. Unlike many authors who merely give numerical answers where appropriate and ignore the rest, Stephen Fisher has taken trouble to outline the arguments required in the solution of the exercises.

All in all, this is a very nicely written and nicely presented text. The introduction of a paperback version of the second edition is to be welcomed as it should make it affordable for the majority of students.

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