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| Book Name: | **COMPLEX ANALYSIS: A Geometric and Visual Approach** |
| Manuscript Number: | **Ms\_BPR\_6096** |
| Title of the Manuscript: | **COMPLEX ANALYSIS: A Geometric and Visual Approach** |
| Type of the Article | **Complete Book** |

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| **PART 1: Comments** |
|  | **Reviewer’s comment****Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **Author’s Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | **The manuscript presents a treatment of complex analysis topics ranging from basic theorems to elliptic functions, but requires few revisions to meet publication standards.** |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | **Yes** |  |
| **Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.** | **Yes (no modification needed)** |  |
| **Is the manuscript scientifically, correct? Please write here.** | **The study would benefit from more illustrative examples and clearer motivation for advanced concepts.** |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** | **No (suggestions have been recommended in my comments below)** |  |

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| **Is the language/English quality of the article suitable for scholarly communications?** | **No (suggestions have been recommended in my comments below)** |  |
| **Optional/General** comments | The manuscript presents a treatment of complex analysis topics ranging from basic theorems to elliptic functions, but requires major revisions to meet publication standards. The exposition lacks sufficient rigour in several key areas, pedagogical clarity is inconsistent, and the connection between topics needs strengthening. The study would benefit from expanded proofs, more illustrative examples, and clearer motivation for advanced concepts. I nonetheless have a few moderate comments and suggestions that may help fit the paper within the aims and scope of this particular journal:1. The study's treatment of Liouville's Theorem and its applications appears rushed, particularly in the transition from the bounded entire functions result to the Fundamental Theorem of Algebra. The logical flow between these foundational results needs more careful exposition, with intermediate steps explicitly stated to guide readers through the conceptual leap from complex function theory to algebraic consequences.
2. The presentation of Cauchy's Residue Theorem lacks sufficient computational examples that demonstrate practical applications beyond the standard integral evaluations shown. The study should include more diverse examples involving (e.g., <https://doi.org/10.15587/1729-4061.2023.276168>) multi-valued functions or branch cuts to prepare readers for the complexities they will encounter in advanced applications, particularly given the later treatment of elliptic functions.
3. The section on automorphism groups of various domains jumps too quickly between different spaces without adequately motivating why these particular groups are significant. The study needs to establish clearer connections between the algebraic structure of these groups and their geometric interpretations, perhaps through additional visualisations or explicit computations of group actions on boundary points.
4. The treatment of normal families and equicontinuity in the build-up to the Riemann Mapping Theorem lacks sufficient detail on the compactness arguments that are central to the proof. The study should expand the discussion of Montel's theorem and its role in establishing the existence of conformal mappings, as this represents a critical juncture where topology and complex analysis intersect.
5. The mathematical exposition would benefit significantly from incorporating contemporary applications that demonstrate the relevance of these classical results to modern problems. Research on mathematical modelling techniques has shown that complex analysis tools are essential in various applications, and the examination of model accuracy and validation methods (e.g., <https://doi.org/10.14445/22315381/ijett-v72i6p139>) demonstrates how classical mathematical frameworks require careful scrutiny when applied to real-world phenomena, suggesting the study should address how theoretical results translate to computational implementations.
6. The final treatment of elliptic curves and their connection to complex tori is too compressed for the intended audience. The study rushes through the Weierstrass parameterisation without adequately explaining the geometric

intuition behind the addition formula or its significance in modern algebraic geometry and cryptography, missing an opportunity to connect classical complex analysis with contemporary mathematical research. |  |

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| **PART 2:** |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with the reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in detail)* |  |

 **Reviewer details:**

**Soumyajit Koley, India**