Complex Analysis, Imaginary Numbers in Real World

Prof. Ashwini Naresh Kudtarkar and Prof. Tarannum Ansari

Shri G. P. M. Degree College, Vile Parle (E), Mumbai, Maharashtra, India

Abstract: *This article explores introductory concepts related to complex numbers. The complexity of a society often parallels the increasing demand for mathematical understanding. Here, we delve into the nth roots and solutions of equations of the form $z^n = 1$. Complex analysis is a pivotal subject for students in engineering, computing, the physical sciences, and mathematics. Over the past four centuries, complex systems have been subject to intensified study, becoming an accepted mathematical framework for the sake of representation or choice. With the emergence of more abstract proofs, mathematicians gained confidence in developing techniques for solving complex systems. Today, the study of complex numbers has evolved into an independent subject known as complex analysis. This advanced exploration of complex numbers, along with the expansion and simplification of proofs, has opened up new and expansive perspectives for approaching various branches of mathematics.*

Keywords: Complex Numbers, Analytical functions, Series, Sequence, Convergence, Residues