

**Complex Analysis for Mathematics and Engineering**  
***Mathematica* Notebooks**  
by  
**John H. Mathews and Russell W. Howell**

This outstanding collection of *Mathematica* notebooks correlate directly to the textbook "Complex Analysis for Mathematics and Engineering" by John H. Mathews and Russel W. Howell. They illustrate how to use *Mathematica* to compute almost everything involving complex analysis. Individual notebooks for each section in the textbook show how a hand computation can be done with the computer algebra software *Mathematica*. Written in a friendly and accessible style, this is the ideal resource for learning how to do complex analysis computations with the computer software *Mathematica*.

This supplement presents examples of complex analysis in the state-of-the-art computational environment using *Mathematica*. It starts with the basic calculations involving complex numbers and shows how to define and evaluate and graph complex functions. Computations relating analytic and harmonic functions are explored and illustrated. Then explorations for the elementary functions and their series representations are introduced along with their conformal mappings. The topics of: complex integrals, contour integrals, Taylor series and Laurent series are all explored with computer calculations and graphs. Then the study of the residue calculus and its applications to definite integrals are enhanced by using all of *Mathematica* built in subroutines for finding, limits, derivatives, series, integrals and residues. Concluding are *Mathematica* applications for: Z-transform, Boundary Value Problems, Conformal Mapping, Fourier Series, Fourier Transform and the Laplace Transform.