Complex analysis for mathematics and engineering
Mathews, John H.

6.5 Integral Representations for Analytic Functions

6.6 The Theorems of Morera and Liouville and Some Applications

Chapter 7- Taylor and Laurent Series

7.1 Uniform Convergence

7.2 Taylor Series Representations

7.3 Laurent Series Representations

7.4 Singularities, Zeros, and Poles

7.5 Applications of Taylor and Laurent Series

Chapter 8- Residue Theory

8.1 The Residue Theorem

8.2 Calculation of Residues

8.3 Trigonometric Integrals

8.4 Improper Integrals of Rational Functions

8.5 Improper Integrals Involving Trigonometric Functions

8.6 Indented Contour Integrals

8.7 Integrands with Branch Points

8.8 The Argument Principle and Rouche's Theorem

Chapter 9- Z-Transforms

The topic in my new section is z-transforms and applications to: finite difference equations, recurrence equations, digital filter design, signal processing

Chapter 10- Conformal Mapping

10.1 Basic Properties of Conformal Mappings

10.2 Bilinear Transformations

10.2.1 Lines of Flux

10.3 Mappings Involving Elementary Functions

10.3.1 The Mapping w= (z2 -1) 1/2

10.3.2 The Riemann Surface for w =(z2 - 1)1/2

10.4 Mapping be Trigonometric Functions

10.4.1 The Complex Arcsine function

Chapter 11- Applications of Harmonic Functions

11.1 Preliminaries

11.2 Invariance of Laplace's Equation and the Dirichlet Problem

11.3 Poisson's Integral Formula for the Upper Half Plane

11.4 Two-Dimensional Mathematical Models

11.5 Steady State Temperatures

11.5.1 An Insulated Segment on the Boundary

11.6 Two-Dimensional Electrostatics