Ch1. Dirac Delta Function

* 1. Definition of Dirac Delta Function
  2. Sequence Functions
  3. Properties of Dirac Delta Function
  4. Dirac Comb Function

Ch2. Vector Analysis

* 1. Summation Convention and Special Symbols
  2. Vectors and Tensors
  3. Differential Vector Operators
  4. Helmholtz Theorem
  5. Transverse and Longitudinal Components
  6. Coordinate Systems

Ch3. Complex Variables

* 1. Complex Numbers and Functions
  2. Analytic Function
  3. Cauchy’s Theorem
  4. Power Series Expansion of Analytic Function
  5. Cauchy Principal Value and Hilbert Transform
  6. Residue Theory
  7. Evaluation of Definite Integrals

Ch4. Integral Transforms

* 1. General Form of Integral Transforms
  2. Fourier Transform
  3. Laplace Transform

Ch5. Differential Equations

* 1. Introduction to Differential Equations
  2. Ordinary Differential Equations
  3. Series Solutions: Frobenius Method
  4. Some Special Functions

Ch6. Special Functions

* 1. Introduction to Special Functions
  2. Gamma Function
  3. Bessel Functions

Ch6. Green’s Functions

* 1. Green’s Function: Superposition of Impulse Response
  2. 1-D Green’s Function
  3. 2-D Green’s Function
  4. Scalar Green’s Function