

Some Applications of Orthogonal Polynomials

Abstract

Orthogonal polynomials are defined as a class of polynomials that satisfy an orthogonality condition with respect to a weight function over a specified interval, such that the integral of the product of two distinct polynomials equals zero. In this project, we study some applications and properties of orthogonal polynomials in one variable and two variables, such as bilinear and bilateral generating functions, integral and derivative representations and integral transformations which are useful in many fields of engineering and also physics.