

Abstract

The topic of integral equations is one of the most useful mathematical topics in both branches of applied and pure mathematics. It can be used in many physical problems, engineering and other fields of science.

Many of the elementary and boundary value problems associated with ordinary and partial differential equations can be transform to integral equations.

This research includes two chapters, in chapter one, we studied integral equations and several kinds of this type of equations with illustrative examples.

The content of chapter two concludes the study of power series method. We applied the proposed method to Volterra integral equations of nonhomogeneous and of second kinds with several application examples.