CHAPTER 1
INTRODUCTION

If we talk about the solution of differential equation, normally such solutions are strong or classical which are well-known for long times ago. But in this work we are also concerned with the another types of solutions which is called the weak solutions, that means the solutions are belong to the space $\mathcal{D}'$ of distribution. L. Schwartz [3] is the first mathematician who applied distribution theory to solve the solution of differential equation. After that A.H. Zemanian [2] has well developed the theory of distribution which has more powerful in solving differential equation.

In 1999, A. Kananthai [1] has studied the solution of differential equation with polynomial coefficient which is the homogeneous form. But in this thesis, some nonhomogeneous with polynomial coefficients is also studied.