INTRODUCTION

It is a very well known and important theorem in mathematics that any two complete ordered fields are isomorphic (see [1], page 18).

In [2], P. Sinutoke has defined a semiring to be a set S together with binary operation called addition (+) and multiplication (·) such that (S,+) and (S,·) are commutative semigroups and multiplication distributes over addition. From this definition, P. Sinutoke defines a ratio semiring in [2], to be a semiring S such that (S,·) is a group and she defines a semifield in [2], to be a semiring S such that (S,·) is a group with zero. In this thesis we shall study the problem of classifying complete ordered skew ratio semirings, complete ordered skew semifields and complete ordered skew rings.

In Chapter I, we introduce some notations, give definitions and recall some theorems that will be used.

In Chapter II, we classify all complete ordered skew ratio semirings.

In Chapter III, we classify some complete ordered skew semifields. We are able to classify all complete ordered 0-skew semifields in Section 1. In Section 2 we classify some complete ordered ∞-skew semifields. We show that there are three types of complete ordered ∞-skew semifields which we call type I ∞-skew semifields, type II ∞-skew semifields and type III ∞-skew semifields.

In Chapter IV, we classify all complete ordered skew rings and as a corollary we prove that a complete ordered skew field is isomorphic to the real numbers.