INTRODUCTION

In [2], semifields which have commutative addition and
multiplication were studied and the foundations were laid for a theory
of semifields in the commutative case. Our purpose in this thesis is
to lay the foundations for a noncommutative theory of semifields which
we call "seminear-fields". As a result, we prove the most basic
theorems concerning seminear-fields. We looked at all the theorems in
[2] and [5] and tried to extend them to the noncommutative case.
We were successful in extending most of the theorems in the first
four sections but the theorems in the fifth section concerning
embedding problems were very difficult to extend to the noncommutative
case. We leave them as open problems for future reseach.

In Chapter I we give the background to this thesis i.e. we
give the basic theorems and definitions used in the text.
In Chapter II we study division seminear-rings which are closely
related to seminear-fields. We completely classify all finite
division seminear-rings and give a few basic properties of division
seminear-rings. In Chapter III we study seminear-fields. We show
that there are four types of seminear-fields which we call category I,
II, III and IV seminear-fields. We completely classify category III
and IV seminear-fields which must have order two. Then we study
category I seminear-fields and show that there are four types in this
case. We give the basic properties of category I and II seminear-fields
and determine the prime seminear-fields of all the finite seminear-
fields. The prime seminear-fields of infinite seminear-fields are
difficult and we leave them as open questions for future research.