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IDEALS AND ALMOST PRINCIPAL IDEALS IN EUCLIDEAN $\Gamma-$SEMIRINGS

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Abstract: The generalization of the ring of ordinary integers and their properties into an Euclidean ring is well known. Every ideal in an Euclidean ring is a principal ideal, as is also widely known. That is, the Euclidean ring is a principal ideal ring. This paper aims to generalize the $\Gamma-$semiring of non-negative integers and their properties by defining Euclidean $\Gamma-$semiring. A Euclidean $\Gamma-$semiring is one of the many special classes of $\Gamma-$semirings. Finally, the special class of $\Gamma-$semirings discussed in this paper is the class of almost principal ideal $\Gamma-$semirings.

Keywords and Phrases: Euclidean $\Gamma-$semiring, Almost Principal ideals and Almost Principal ideal $\Gamma-$semirings.
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1. Introduction

Semirings were first considered explicitly by Vandiver in (1934) [15] in connection with the axiomatization of the arithmetic of the natural numbers. Many scholars have investigated semirings, either independently or as part of an effort to branch out from ring theory or semigroup theory, or in connection with applications. Semirings never gained widespread acceptance, and although interest in them never fully waned among algebraists, it did gradually. Redei [8] and Almeida Costa [1] are the only authors to attempt to explain how the algebraic theory of