

IDEAL TRANSFORMS IN GENERALIZED KRULL DOMAINS

0. Introduction, Definitions and Basic results.

Let R be a commutative integral domain with unity and let K be the field of fractions of R . If A is an ideal of R then the set

$$T(A) = \{ x \in K \mid xA^n \subseteq R \text{ for some positive integer } n \}$$

is a ring and is called the A -transform of R , ideal trans-

form of R or the transform of A . The notion of an ideal

transform was introduced and developed by Nagata in [26] and [27].

Gilmer used the ideal transforms in the study of Prüfer

domains in [12]. Later appeared [17] by Gilmer and Heinzer.

The efficiency of this tool in studying the Prüfer domains,

soon attracted the attention of various mathematicians and

the study of properties of the ideal transform began. Brewer

in [2] put forward some striking results connecting some

integral domains and the transforms of their proper princ-

pal ideals, while Arnold and Brewer in [3] discussed

generalized transforms. Gilmer and Huckaba [15] discussed

some properties of ideal transforms in general and of ideal

transforms in Krull domains in particular.

Our interest in the generalization of the concept of

Unique Factorization led us to generalized Krull Domains (cf

Ch 1) and the rather easy formulation of Generalized Unique

Factorization led to the observation that, with some modifi-

cations the GKD's can be studied on the same lines as Krull

domains. The realization of Theorems 1, and 2, confirmed

our observation as far as the ideal transform is concerned,

Theorem 2, in fact has motivated much of the work included