

SEMIRINGS SATISFYING THE IDENTITY $a + b + ab = a$

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Abstract

This paper deals with the properties of semirings satisfying the identities of two variables. We consider a semiring $(S, +, \cdot)$ in which multiplicative identity 'e' is also an additive identity of S . In the first case of the semiring satisfying the identity $a + b + ab = a$ for all a, b in S then it is proved that $(S, \cdot)$ is singular and $(s, +, \cdot)$ is mono semiring. For this semiring we also determine the additive and multiplicative structures. It is proved that if $(S, +, \cdot)$ is a semiring satisfying above identity then $(S, \cdot)$ is singular if and only if $(S, \cdot)$ is commutative. In this case it is also proved that $(S, +)$ is a left singular and normal. In the second case we consider the semiring S satisfying that the multiplicative identity which is also an additive identity then $(S, \cdot)$ is normal. It is proved that in this semiring if $(S, \cdot)$ is singular then $(S, \cdot)$ is medial. It is also consider that if S is a b-lattice semiring in which $(S, \cdot)$ is singular then $(S, +)$ is singular and left regular.

Key Words : *Left Singular, Normal, Medial, Diagonal, Left Regular, Left and Right Quasi normal.*