Bommireddy, M.; **Reddy, L. Nagamuni**

Comparison and inversion of planar ternary rings with zero. (English) Zbl 0534.16033

Arch. Math. 43, 562-565 (1984).

In this paper the properties of comparative and inverse of a planar ternary ring with zero (PTRZ) are studied. Let $(S, <>)$ be a PTRZ and $s \in S$. Then $(S, <>_s)$ is called the comparative of $(S, <>)$ with respect to s if $< a, s + m, b >=< a, s, < a, m, b >_s >$ and $(S, <>^i)$ is called the inverse of $(S, <>)$ if $m \neq 0, \quad < b, m, d >= 0 \Rightarrow << a, m, b >^i, m, d >= a$. It is proved that (i) the comparative (inverse) of a PTRZ is a PTRZ, (ii) the comparative of a generalized Cartesian group is a generalized Cartesian group, (iii) the projective planes induced by a PTRZ and its comparative (inverse) are isomorphic $(iv) \quad <>=<>_{s,-s}$ and $(v) \quad <>=<>^{i,i}$.

MSC:

16Y60 Semirings
17A40 Ternary compositions
51E15 Finite affine and projective planes (geometric aspects)

Keywords:

comparative; inverse; planar ternary ring with zero; generalized Cartesian group; projective planes

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References:

[1] G.Pickerty, Projektive Ebenen. Berlin 1975.

[2] L. A. Skornyakov, Natural domains of Veblen-Wedderburn projective planes. Russ. Izv. Nauk, SSSR., Ser. Mat.13, 447-472 (1949); Amer. Math. Soc.58 (1951). · Zbl 0033.12502