

THE INVERSE ALONG AN ELEMENT IN RINGS*

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Abstract. Several properties of the inverse along an element are studied in the context of unitary rings. New characterizations of the existence of this inverse are proved. Moreover, the set of all invertible elements along a fixed element is fully described. Furthermore, commuting inverses along an element are characterized. The special cases of the group inverse, the (generalized) Drazin inverse and the Moore-Penrose inverse (in rings with involutions) are also considered.

Key words. Inverse along an element, Drazin inverse, Generalized Drazin inverse, Group inverse, Moore-Penrose inverse, Unitary ring.

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