Analysis of properties of some quasigroup equations

VERICA BAKEVA*, VESNA DIMITROVA*, ALEKSANDRA POPOVSKA-MITROVIKJ*, MARIJA PETKOVSKA* *Ss. Cyril and Methodius University, Faculty of Computer Science and Engineering, Skopje

Quasigroups are algebraic structures that are increasingly used in cryptography today. Research and application of these cryptographic primitives is quite popular due to their specific properties. What is interesting about quasigroups is that their number grows enormously depending on the order of the quasigroup. Their application in block ciphers is quite convenient, since with the help of simple transformations, quasigroups can provide good encryption, while requiring low performance. In this paper, the construction of two types of quasigroup equations will be shown and we will analyze the quasigroups that are solutions of the given equations versus those quasigroups that are not solutions of the equations.