1154-20-113 Casey Donoven (cdonoven@binghamton.edu) and Luise-Charlotte Kappe* (menger@math.binghamton.edu). Finite coverings of algebraic structures I.
We say a group has a finite covering if is the union of finitely many proper subgroups. The minimal number of subgroups needed is called the covering number of the group. Finite covering have been investigated in other algebraic structures, such as loops, rings, and semigroups. No loop and hence no group or ring has covering number two. However, for every integer $n>2$, there exists a loop with covering number $n$. The situation for groups is different. It is known which integers $n \leq 129$ are covering numbers. For rings, the situation is similar to the one for groups. The smallest integer $>2$ for which it is not known whether it is the covering number of a ring or not is 13 . However, the situation for semigroups is different. There exist semigroups with covering number two. This led us into further investigations of finite coverings of semigroups. (Received August 09, 2019)

