

and sufficient condition(s) in terms of the inner mapping group (associators) for a loop to be a Basarab loop were established. It was discovered that in a Basarab loop: the mapping  $x \mapsto T_x$  is an endomorphism if and only if the left (right) inner mapping is a left (right) regular mapping. It was established that a Basarab loop is a left and right automorphic loop and that the left and right inner mappings belong to its middle inner mapping group. A Basarab loop was shown to be an automorphic loop if and only if its inner mapping group is generated by the middle inner mapping. Some interesting relations involving the generators of the total inner mapping group of a Basarab loop were derived, and based on these, the generators of the total inner mapping group of a Basarab loop were finetuned. A Basarab loop was shown to be a totally automorphic loop (TA-loop) if and only if it is a commutative and flexible. These afore mentioned results were used to give a partial answer to a 2013 question and an ostensible solution to a 2015 problem in the case of Basarab loops.

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## Laboratory works in courses of algebraic disciplines of higher educational institutions

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At this moment, the main role of mathematical knowledge is the effective preparation of future specialists in the field of teaching natural sciences, programming, technology, medicine, etc.

At the same time, in the system of mathematical preparation of a university student, the formation of his research competence is not sufficiently described in the pedagogical literature developed by us.

In particular, there is a gap in the implementation of laboratory work on mathematics (as one of the most powerful means for forming the student's research competence) in the educational process.

We believe that laboratory work must integrate theoretical knowledge, practical skills and abilities of students into a single process of teaching and research activity, that is — in laboratory work.

Unfortunately, the laboratory work of mathematics often turns into calculating a mathematical model by pattern, ignoring the research component.

Computerization of computational methods not only did not eliminate this problem, but even intensified, shifting the emphasis on the creation of a specific product (let's suppose an algorithm for solving a certain problem), the possibilities of one or another software environment.

The main task in the development of the laboratory work on mathematical disciplines — maximize the research potential of each laboratory work using the capabilities of modern computer environments, for example, Python's ability to create algorithms for solving mathematical problems.

In the example of two disciplines of the bachelor's curriculum in the field of knowledge "Information Technologies" specialty "System Analysis", named: "Linear Algebra and Analytical Geometry" and "Fundamentals of Algebra and Numerical Systems", we introduced 8 Laboratory classes in each, hoping that Having mastered the general methods of solving tasks defined by the program, the student will solve them. In our opinion, the solution of each of these tasks is equivalent to solving a similar problem, but with parameters. In our view, such approach will contribute increasing the level of student's competence in mathematics and in programming.

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