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THE STUDY OF STUDENTS' ABILITY TO SOLVE PROBLEMS WITH PARAMETERS

The theoretical study and mathematical modeling of various processes of practical human activity often leads to rather complicated equations, inequalities or systems that contain parameters. Therefore, the problem with parameters and their solutions become more and more relevant every year.

The problems with parameters are the subject of research of many scientists. In particular, in the works of S.I. Novosylova, A.G. Mordkovycha, I.F. Sharyhina, M.I. Bashmakova, V.V. Vavilova, A.M. Goldmana, S.A. Tynyankina, G.A. Yastrebynetskoho a wide class of problems with different parameters and methods of their solution is considered. However, it should be noted that the lack of manuals with parameters problems and a small amount of task parameters in existing programs for mathematics at secondary schools.

The purpose of the article is: to introduce the results of the study which can be applied to the skills of students to solve problems with parameters.

The study was conducted at the 10th and 11th grades Zhytomyr Regional Pedagogical Lyceum. The investigation was divided into two parts: a survey and practical problems.

The research objectives are:

- to determine whether the Lyceum students solve the problem with the parameters;
- to check the ability to solve simple problems with parameters;
- to determine which methods of problems solving with parameters are often used by the Lyceum students.

The questionnaire included questions presented in a Figure 1.

Last name _____ Course _____

- | |
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| <ol style="list-style-type: none">1. Have you solved the problem with the parameters during your studying at high school?2. How often do you solve the problem with the parameters?3. Do you solve these problems at lessons of Maths at high school?4. How often do you solve the problem with the parameters?5. In your opinion, why it is important to solve problems with parameters?6. How often do you solve the problems with parameters using a graphical method? |
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Fig. 1

The survey results have led to the following conclusions:

- many schools do not pay enough attention to problems of parameters;
- the majority of students in the choice of method for solving exercises the options prefers analytical method;
- Motivation of students is focused mainly on getting good pass EIT.

Investigating the ability to solve problems by students with the parameters we have developed a system task. Requirements objectives were formulated:

- 1 goal - written as an expression;
- 2 targets - Solve linear equations with a parameter;
- 3 targets - Solve a system of linear equations with parameters;
- 4 problem - Solve the inequality.

The investigation included 43 pupils of the 10th forms and 43 pupils of the 11th forms. Students were offered prepared cards with tasks and the instructions for completing and registration cards were carried out.

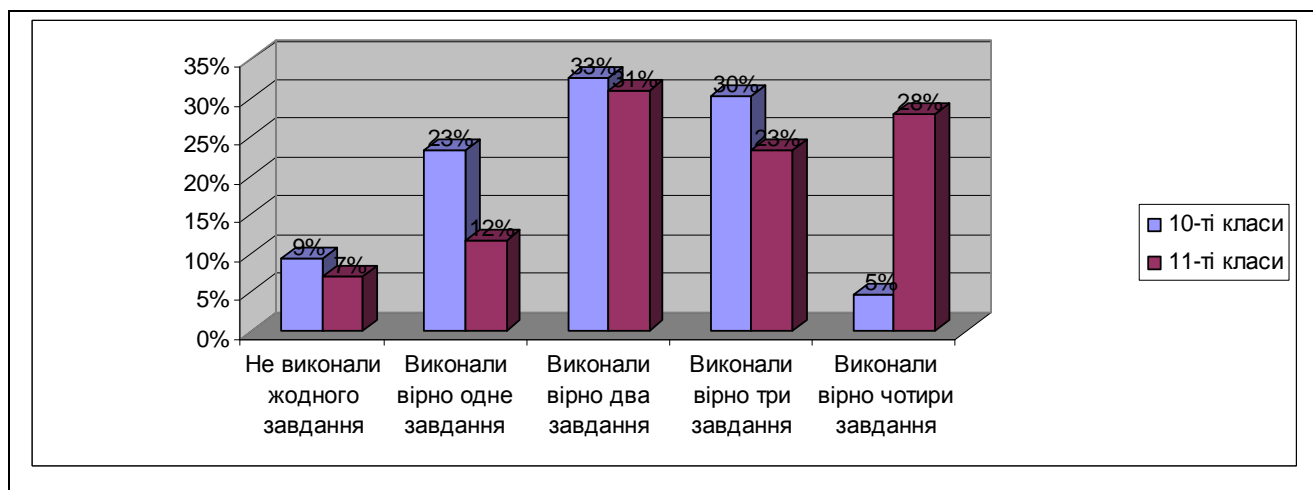


Fig. 2

So as we can see from the diagram, in eleventh form. The percentage of those who haven't fulfilled any problems is 7%. However, the percentage of those who have managed to solve all the tasks given is nearly six times higher (28%). 23% of students performed three tasks. It is three times bigger than the number of those who haven't fulfilled any tasks given and twice bigger the number of those who have completed only one task.

Thus, in the course of the study found that many students have had even the simplest tasks with parameters caused serious difficulties. There are students who generally couldn't understand what they were required to do. The reasons for this are several, but mostly, we think, is (as is shown by analysis of existing textbooks in mathematics) insufficient attention to these problems in the study of curriculum.

We think it is useful to compare the ability of students to other urban schools, including school number 25 named M.O. ShChorsa, to solve problems with parameters. What we will perform in the future.

Literature

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