TEXT PROBLEMS AS A MEANS OF DEVELOPING INFORMATION COMPETENCE OF ACADEMIC LYCEUM STUDENTS

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Abstract. *The article analyzes the types of word problems as a means of developing information competence of students at an academic lyceum, and highlights the principles of developing students' information competence using word problems.*

Keywords: *word problems, limit and continuity of a function, principles of selecting problem material, basic methods of working with information.*

Based on the specific features of teaching in an academic lyceum, the study of mathematics is not only a goal, but also considered as a means of preparation for professional activity. This fact has a significant impact on the requirements for the content of mathematics and the forms of its presentation.

Analyzing approaches to the selection of mathematical content, we note that A.A.Verbitsky, M.V.Pototsky, G.V. Dorofeev and many other researchers believe that the content of education, regardless of the profile of the specialist, should be fundamental, that is, it should ensure the implementation of the main goals of education. This statement was formulated by G. V. Dorofeev in the form of the principle of stability and reasonable conservatism [1].

In accordance with this principle, we note the main elements that should be included in the main content in accordance with the educational standard of secondary special education and the working curriculum for mathematics: real numbers and their properties; the concept of functions, their main properties and operations on functions; numerical sequences, determining the limit of a sequence, properties of converging sequences, arithmetic operations on converging sequences; function limit, main types and properties of limits; concept and properties of continuous functions; elementary functions, their properties; the concept of the derivative of a function.

Pupils should know how to use differential calculus in studying the derivatives of functions, the extremum of a function, solving physical and geometric problems. Mastering theoretical material occurs in the process of solving problems.

Ya.I.Grudenov developed the principles of problem material selection (continuous repetition, contrasting examples, principle of comparison and completeness), which should be taken into account when creating problems in the process of teaching mathematics. [2] We will show the essence of these principles in the selection of tasks on the topic "Limit and Continuity of Function" and their implementation with concrete examples.

The theoretical content of this topic is as follows: Limit of a function at a point, limit of a function at a point, basic theorems about the limit of a function at a point, limit of a function at infinity, asymptote of the graph of a function

Since there are significant differences in the level of preparation of students of the academic lyceum for the key stage of education and for the profession by direction, differentiated (multi-

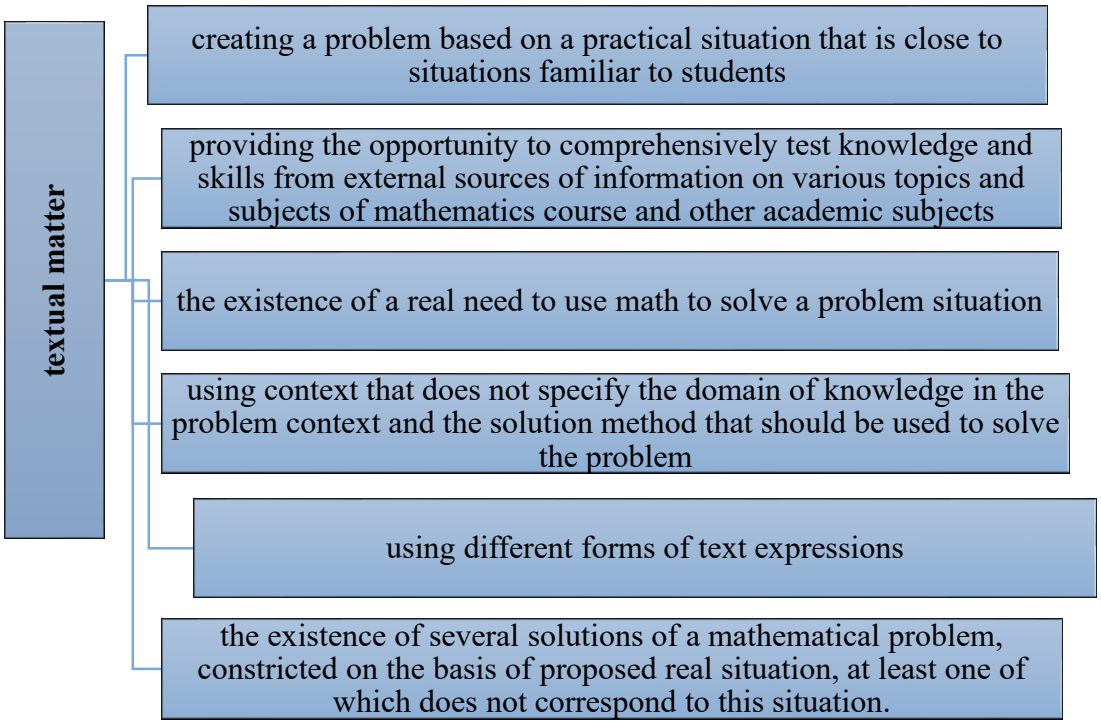
level) issues should be used in the educational process. Differentiation of issues occurs according to the level of their complexity and difficulty. According to V.I.Krupich, the complexity of a problem (or a text) is understood as an objective characteristic of its structure, while difficulty is a subjective perception of complexity [3].

Principles of problem material selection	Principle of classification	Examples
The principle of continuous repetition	From the first time of learning, the problems of the previous sections are included in the system of exercises of the same type on a new topic. The goal is to increase the attention and activity of students' mental activity.	1. $\lim_{x\to\frac{\pi}{2}} \frac{\left(\frac{\pi}{2}-x\right)tgx}{\cos(x-\pi)}$ (trigonometric real substitution) 2. $\lim_{x\to\infty} \frac{x^3+3x^2-4}{2x^3+4x}$ (division of polynomials)
The principle of outline examples	If tasks are given to students for independent work, they should be accompanied by detailed analysis of answers and possible errors.	calculate the $\lim_{x\to\infty} x\left(\sqrt{x^2+1}-x\right)$ (The error in solving the problem is that usually only $x \to +\infty$ case is considered, which leads to an incorrect answer, cause $x \to +\infty$ va $x \to -\infty$ limits are different for
Principle of comparison	Includes exercises in direct and inverse operations, sharing tasks to highlight their interrelationships, similarities and differences. It is appropriate to use in cases where students have difficulty distinguishing and confusing the methods of solving exercises.	1. Try by definition: $\lim_{x\to 4}\left(\frac{x^2-16}{x^2-4x}\right)=2$ 2.If $\lim_{x\to\infty}\left(\frac{x^2+1}{x+1}-ax-b\right)=0$, a and b find the invariants
The principle of completeness	A set of problems satisfies the principle of completeness if it contains all types of problems for a given rule or theorem (set of theorems), including special cases.	Prove: $\lim_{x\to\infty}\frac{2x+5}{3x-2}\neq 1$ $\lim_{x\to 1}(x^2+3x)=4$

According to A.M.Matyushkin, the complexity of the issues depends on: 1) the number of conditions; 2) by the number of significant relationships within the scope of the condition; 3) from the number of mediations necessary to achieve the desired result; 4) by the number of changes leading to the answer.

M.I.Makhmutov determines the level of complexity of the problem: the nature and content of new knowledge, skills; type of activity; takes into account the clarity and simplicity of speech formation [4].

In turn, V.I.Krupich suggests determining the complexity of the problem by the number of elements in the problem structure and the presence of explicit and implicit connections [3]. The actions performed in the process of solving the problem can be divided into the same and equivalent, which form the same and therefore play the role of generational relations. Expressions resulting from the implementation of the same changes should be considered as elements of the problem structure. Moreover, if the elements of the problem come immediately one after the other (not separated by equivalent transformations), then the connections between the elements are called explicit, if they are separated by equivalent transformations, the connections are called implicit.



Textual problems have their own characteristics compared to mathematical problems, which should be taken into account in their construction and application in the educational process. For example, L.O.Denischeva using the following principles suggests choosing textual issues to develop students' competence in working with information:

Multi-level text problems are considered as a means of developing information competence in the process of teaching mathematics of academic lyceum students. When choosing their content and the content of theoretical material, the principles of methodological approach, redundancy of information, orientation to professional activity and differentiation of levels are taken into account. The methodological principle is the need for academic lyceum students to master the basic techniques and methods of working with educational mathematical data: techniques of working with concepts and theorems, mnemonic methods (highlighting a column symbol, converting information into figurative codes , connecting to certain information, distinguishing a distinguishing feature), information interpretation mechanisms (content reflection, creolization of educational languages).

The actions that make up the main methods of working with information that the student should master in the process of teaching mathematics are the following:

Interpreting information as a translation from one language to another and giving personal meaning to the information. Some mechanisms of educational integration proposed by A.Ya.Danilyuk [5] can serve as methods of information interpretation: a) content accentuation - a mechanism of attracting some elements and eliminating others, which allows creating a unified educational space.

The implementation of this mechanism is manifested at the stage of selecting an individual micro-goal of the activity (choosing one of the multi-level problems and solving it) by using the activity goal selection algorithm or by analyzing the selection criteria. Analysis and selection of theoretical material, its interpretation is carried out based on the chosen goal. b) creolization of educational languages - the mechanism of instilling the language of the teacher, the language of scientific texts into the mind of the student, as a result of which a single language is formed [5].

When communicating with the teacher and classmates, the student's language changes in the process of working with a scientific text, it is enriched with vocabulary, turns of speech and phraseological units accepted in this field.

The formation of a single language occurs as a result of the implementation of certain activities aimed at forming connections between the concept and its image (symbolic, verbal and graphic), determining the reasons for the proposed symbols, confirming or rejecting possible assumptions about the concept. , and so on. When studying, it is important to combine different coding methods, which allows to form the most complete picture of the studied phenomenon.

The principle of redundancy of information consists in the expediency of including additional information necessary to solve them in the content of textual problems. The issues include materials presented in various forms (verbal, graphic, schematic) related to the description of professional situations in the activity of a mathematics teacher, the history of the emergence and development of the studied concepts, and methods of mathematical analysis. should get The content of the training material may include the following additional information:

- additional historical material. For example, after studying the topic "Continuity of a function", students are invited to consider the history of the emergence of the concept of continuity

- additional material reflecting the possibilities of using educational material in professional activities. - additional material reflecting the practical direction of the studied educational material.

The principle of orientation towards professional activity involves creating conditions for organizing the professional activity of an academic lyceum student in working with information.

The issues included in the complex should reflect the types of activities related to the profession: analytical and synthetic, information-explanatory, design, prognostic, organizational management and research activities. In other words, the content of the assignment should reflect a situation close to the real situation that occurs in professional activities.

• The principle of differentiation of the level implies taking into account the individual characteristics of students in the educational process. Problems should be of different levels of complexity, which allows the student to choose and build an individual activity scheme in the process of learning mathematics.

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