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## **HEURISTICS IN TEACHING SCHOOL STUDENTS MATHE- MATICS**



### **Introduction**

- Education at the present stage of development of psychology, pedagogy and school practice is characterized by increased attention to the student, to his self-development, the student's appeal to the world and himself.

#### **Problem Formulation**

The goals of mathematical education can be realized only with the adequate content of education. Knowledge should be considered, on the one hand, as a result of mental actions (reflection of reality), and on the other hand, as a process of obtaining this result (mental operations).

Heuristics can be interpreted, firstly, as a separate tool or technique, and secondly, as an integral system of views that allows you to correlate your own actions in the course of solving a problem and their justification. Thus, heuristics is considered not only as an empirical phenomenon, but also as a peculiar type of thinking processes, directly connected with the creative activity of a person.

By heuristic, we mean any technique, the application of which can lead to finding the necessary method for solving the problem or proving the theorem.



### **Problem Solution**

- Let us single out those properties of heuristics with the help of which it is possible to find out its qualitative peculiarities, as well as outline the functions in the decision process. On this basis, we will group those techniques that turn out to be similar in their results into independent families.

- Thus, we have determined the following set of heuristic methods:

- empirical heuristics – analogy, operating with a certain class of objects and relationships, primary modeling of the properties of objects and their relationships.

- subject heuristics – the ability to distinguish and identify objects, re-thinking objects from the points of view of other concepts, using the characteristic properties of a concept, secondary modeling of new properties of phenomena.

➤ logical heuristics, manifested in elementary discursive transitions, analysis of the conditions and requirements of the problem, deriving the corollary directly from the condition of the problem, converting the requirements of the task into the one equivalent to it, constructing a new task on the basis of the problem.

➤ geometrical heuristics, based on spatial ideas: making of a drawing, that meets the conditions of a problem, finding the necessary elements in it, the completion of a geometrical figure, adding constructive elements to it.

➤ conceptual heuristics – translation of the contents of the problem into the language of special theory and vice versa, replacing a variable, reformulating the problem, breaking the task into parts, constructing auxiliary problems, identifying alternative ways of solving a problem. The given set is important not only for the classification of heuristic techniques, but also for teaching the students how to use them in the process of solving mathematical problems.



## **Conclusion**

It is important to create conditions for the inclusion of the student in the independent hypothesis and in the search for their solution or refutation, i.e. into full-fledged heuristic activity. Such training forms heuristic intellectual skills in schoolchildren, which are important for the development of their creative potential regardless of future professional activities.