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Logic and Scientists Today Opinion

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ABSTRACT

This article contains information about the subject of logic science, the history of its origin, and foreign Uzbek scientists who contributed to the development of the science.

«Logic» is an Arabic word, which corresponds to the word «logic» in meaning. The term "logic" comes from the Greek word "logos" and has meanings such as "thought", "word", "mind", "law". Its multiple meaning is reflected in the fact that it expresses different things. In particular, the word logic, firstly, refers to the laws of the objective world (for example, in expressions such as "objective logic", «the logic of things»), and secondly, the forms of existence and development of thinking, including between thoughts rules characterizing the relationship sum (for example, in the expression "subjective logic"), and finally, thirdly, it is used to express the science that studies the forms and laws of thinking. Thinking is the object of study of the science of logic. «Logic» is an Arabic word and is used as a synonym of the Uzbek words «thinking», «mental knowledge».

Thinking is a higher stage of cognition. In order to better understand its essence, it is necessary to determine its place in the process of knowledge, its relationship with other forms of knowledge. Cognition consists in the reflection of reality, including the phenomena of consciousness, in the form of subjective, ideal images in the human brain.

Practice is the basis and ultimate goal of the learning process. In all cases, knowledge is subordinated to the understanding of things that are related to a person's life activity to one degree or another, that can satisfy his specific needs. While carrying out the process of knowing, people set certain goals for themselves. They determine the range of subjects to be studied, research direction, forms and methods.

It should be said that logic has its own history of formation and development. The first ideas about logic arose in the countries of the ancient East, especially in India and China. In ancient times, Logic was a part of philosophy, it was not formed as an independent science. In Greek philosophy, the issues of logic were initially considered in one way or another in the works of

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Parmenides, ``On Nature", in the aporias of Zeno of Eleusis, and in the teaching of Heraclitus. Democritus' logical theory, Socrates' inductive method, and Plato's dialectic are noteworthy among the pre-Aristotle logical theories. The formation of the science of logic as a separate science is connected with the name of Aristotle. He was the first to define the range of issues that logic studies. His "Categories", "On Interpretation", "First Analytics", His works "Second Analytics", "On Sophistic Refutations" and "Topics" are devoted to logic issues. Aristotle defines logic as a science that "determines unknown knowledge from known knowledge" and "separates true opinion from false opinion." Later, the science of logic was formed in the countries of the Near and Middle East. Philosophy and logic developed as an independent science in Central Asia. Great thinkers such as Farabi, Ibn Sina, Beruni, Omar Khayyam, Alisher Navai and Bedil have contributed greatly to this. In his works "Introduction to Logic", "Origin and Classification of Sciences", Farobi considered the problems of logic as methods of scientific knowledge. Generally speaking, logic is the science that teaches the forms and laws of thought that lead to the knowledge of truth. At this point, it should be noted that studying the science of mathematical logic and using its laws play a big role in developing the culture of thinking in students.

Cultivating the culture of thinking is important in order to be knowledgeable and intelligent, to scientifically understand and discuss various issues, and not to make mistakes in reasoning. It is necessary to learn the science of logic in order to learn how to express thinking in a systematic way and in connection with each other, to use the laws of logic correctly. Acquainting students with the elements of mathematical logic teaches them to deeply and consciously master the science of mathematics, to draw correct logical conclusions, to express logically correct, meaningful and non-contradictory oral and written speech. The main source of development of logical thinking in students is the science of logic. «Logic, is the grammar of thinking» said Ushinsky K.D. One of the founders of the science of mathematical logic is the great German philosopher and mathematician G.V. Leibniz (1646-1716). Leibniz was the first to try to create logical calculations. The period of continuous development of mathematical logic began in the middle of the 19th century. Irish (English) mathematician George Boole (1815-1864) is considered the founder of mathematical logic. 1854 wrote a work entitled "Study of the Laws of Thinking" and created the algebra of logic. The German mathematician Gottlob Frege (1845-1925) opened a new era in the development of mathematical logic and was the first to show that this science can be built on the basis of the deductive method. His services are reflected in the book "Calculation of Concepts". The results achieved in the field of mathematical reasoning created the theory of mathematical proof, an important branch of mathematical logic. In creating this theory, German mathematicians Frege G., Gilbert D., Gentsen G., Russian mathematicians Lobachevsky N.I., Poretsky P.C., Soviet mathematicians Shein-Finkel' M.I., Glivenko V.I., Kolmogorov A.N., Markov A.A., Novikov PC., o' zbekscientists Khairullaev M.M., Yusupov E.Yu., Qabulov V., Rahimov I., Sharipov M., Imomkho'jaeva O., D. Fayzikhojaeva conducted scientific research and made great contributions [1-2].

Currently, the application of mathematical logic has increased in the construction of complex electric calculating and control machines, information-logic machines. Mathematical logic began to be applied to other sciences - linguistics, biology, ecology, economics, cybernetics and other fields. School mathematics, along with other subjects, greatly helps students in mastering the basic laws of formal and dialectical logic. The study of mathematical logic is of great help both in understanding mathematical methods and in choosing effective methods for teaching mathematics, because the methodology of teaching mathematics itself is applied logic. It is important to know the basic laws of formal and dialectical logic to improve students' mathematical culture.

Logic (formal logic and dialectical logic) corresponds to the dialectical method of studying the phenomena of nature and society. Logical thinking is first of all correct thinking, reasoning

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based on the laws of logic. Students from 4-5 grades (even elementary grades) it is necessary to introduce the elements of mathematical logic, to teach the scientific study of the logical structure of mathematics. Teaching to distinguish between correctness and incorrectness of a sentence in elementary grades makes the student's speech more fluent. For example, explain the correctness of these sentences: "Power is in knowledge", "He who reads a lot knows a lot", «Friendship is better than wealth", "All for one person", «To' each corner of a right rectangle is right», «If the equation is in the form of 3 + 4, subtracting = ... the remaining number is seven», «If 10 x 7, = the unknown number is three", "If 2 + 5 < ..., the omitted number is not smaller than 8", "If the sides of a rectangle are 5 cm and 7 cm, its face is 35 sq. m. will be cm" [2]. Teachers often pay little attention to the subtle and wonderful aspects of developing students' thinking. However, logic helps students from elementary school to be able to make a correct sentence and explain its meaning, to develop their written and oral speech, to believe in the correctness of their opinion and to be able to justify it. Teaching helps to learn logical operations in grades 4-5, to determine the correctness or incorrectness of complex reasoning. Developing students' speech will develop their thinking.

Conclusion: Mathematics is rightfully considered a science that helps the development of logical thinking. Irrational thinking destroys the real meaning of speech, so mathematics teachers should pay great attention to this wonderful feature of mathematics. Unfortunately, some teachers make the mistake of underestimating this wonderful feature of mathematics and teaching students to rote memorization instead of independent discussion.

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