ABOUT THE HISTORY OF TERMS RELATED TO THE FIELD OF MATHEMATICS

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Annotation: In this article, some terms related to the field of mathematics are discussed in a historical context. The purpose of the article is to study the development and formation of some mathematical terms. It is also discussed some ideas about Egyptian contributions to the development of the terms concerned mathematics and it is written about the scientists who contributed to the development of mathematics in the Middle Ages in the countries of Central Asia and the Middle East.
Keywords: mathematics, terms, numbers, counting, shapes, geometric figures, mathematical concepts, mathematical operations.

Introduction. Humanity's ideas about mathematical concepts have been formed since ancient times. In the period of primitive society, people found the necessary things for their life from nature. They used gestures as a means of communication. As the process of development continues, language is formed as a social phenomenon. Society develops. Concepts of calculation and measurement are formed in the human brain, and the need for these concepts increases. So, some ideas about mathematics begin to appear, and this is the earliest period of the emergence of mathematical concepts.

The concepts of numbers and shapes are the oldest units of human imagination. According to historical sources, the use of the concepts of numbers and numerical quantities, various forms, dates back to the Paleolithic period. Imagination and knowledge of mathematical concepts are formed and developed in different ways in different nations. But the concepts that formed the basis of mathematics, that is, the concepts of numbers and shapes, appeared in all nations as a result of human activity, daily lifestyle and experience, and went through stages of development.

Egyptian contributions to the development of the terms concerned mathematics. The Egyptians made significant advances in mathematics. They discovered a number system consisting of 1, 10, 100, 1000 and tens. There were separate symbols for these numbers. A semicircle represents ten, a braided rope represents a hundred, and a lotus symbol represents the number one thousand[1].

Fingers are the first tool used for counting. People have a need to calculate large numbers. Fingers could not satisfy this need. In order to calculate large numbers, the Greeks used the abacus as a much improved tool instead of fingers. The word “Abacus” is Greek word. Because in the past, when actions were performed on large numbers, soil was sprinkled on the board and the actions were performed by writing the numbers on the board using a stick[2].

In addition to counting things, in ancient times people began to have the need to measure length, area, volume, time and other quantities. The concept of “fraction” arose from the impossibility of always measuring the results of such magnitudes with natural numbers. The

concept of the first fraction appeared in Egypt, and undoubtedly the first human concept of a fraction began with the concept of "half" (1/2). Later, the Greeks, Indians and other peoples began to use the concept of fractions.

Scientists who contributed to the development of mathematics in the Middle Ages in the countries of Central Asia and the Middle East. A number of great scientists contributed to the development of mathematics in the countries of Central Asia and the Middle East in the Middle Ages. Their contributions have stimulated the development of the entire world mathematics.

Among these scholars, such as Muhammad ibn Musa al-Khwarizmi, Abu Nasr Muhammad ibn Muhammad al-Farabi, Abu Raikhan Beruni, Abu Ali ibn Sina, and Omar Khayyam are among the first to be mentioned.

It is difficult to evaluate the contribution of Muhammad ibn Musa al-Khwarizmi to the world science. In the Middle Ages, he was considered the leader of the scientists of Eastern countries, and his work paved the way from the science of Ancient Antiquity to the science of the Renaissance[3]. His two books on "Arithmetic" and "Algebra" are of incomparable importance in the history of science and the development of mathematics[4]. Al-Khwarizmi's name is forever imprinted in science with the concept of "algorithm"[5]. This word originally meant a family name, then a positional system of numbers, and now refers to any system of calculations formed on the basis of strict rules[6].

In the introduction to his book "Al-jabr wa al-muqabala", Khwarizmi writes about the contributions of scientists who were of great importance in the development of the science of mathematics before him, as well as about the importance of their works. The book discusses simple and complex issues of arithmetic, i.e. inheritance, problems of property distribution, court, commercial affairs, land measurement. The book provides complete, detailed information on operations and the interpretation of numbers, roots, zeros, quadratics, quadratic and linear equations. In this algebraic source, the author gives descriptions of linear and quadratic equations and lists 6 types of equations[7].

The section on arithmetic in Mafatikh al-Ulum by Al-Khwarizmi consists of 5 chapters, and this book mainly discusses numbers and related issues. The author writes about even and odd numbers and gives detailed explanations about the reading and writing of numbers. The geometry section of the work consists of 4 chapters. The first chapter is devoted to the etymology of its name and the definition of some geometric terms. The second chapter is about lines, in which the author writes about the 3 types of lines and gives the definition of each of them, as well as the definition of a parallelogram. The third chapter is devoted to plane figures and the author gives detailed information about plane figures - rectangle, triangle and circle. The classification of triangles will be discussed separately. The fourth chapter provides information about spatial figures[8].

Khwarizmi's arithmetical treatise includes information about operations on numbers and their signs, degrees, and root extraction operations. The author explains each action in detail, gives examples.

It is through Al-Khwarizmi's priceless works that the whole world gets to know the decimal system.

Abu Nasr Muhammad ibn Muhammad al-Farabi is one of the scholars of the Eastern countries of the Middle Ages who lived and worked in the period close to the time of Al-Khwarazmi.

Al-Farabi divided all mathematical sciences into 7 sections. Among these, he writes separate treatises on the sciences of arithmetic and geometry. Al-Farabi studied arithmetic, dividing it into practical arithmetic and theoretical arithmetic[9].

Beruni is another scientist who made a great contribution to mathematics. About 150 of his works are known, and only a few of them have come down to us.

Beruni's work entitled "At-tafhim" (a book of introductory information on the art of astronomy) is written in the form of questions and answers. Most of the 530 questions and answers are mathematics-arithmetic, algebra, geometry and trigonometry. In the section on arithmetic, natural numbers, prime numbers, figurative numbers are defined and examples are given. Then it will be focused on arithmetic operations and fractional numbers, counting systems (decimal, hexadecimal and literal or abjad). It is also explained what the Rule of Three is and what the ratio is. A number of questions and answers on geometry are also included in the book and its main concepts are discussed. Definitions of geometric figures, circle, diameter, square, triangle, their types and elements, angles and their types, parallel straight lines are given. The rules for calculating the sides of circles, circles, regular polygons inscribed in a circle, dividing an arbitrary angle into three equal parts are given in the book "Kanuni Masudiy"[10].

A number of works related to the field of mathematics of Abu Ali ibn Sina, known as Avicenna, have been identified.

Ibn Sina covers issues such as natural numbers and their main properties, operations on natural numbers, concepts of natural numbers in the arithmetic field of mathematics, and also writes about the theory of proportion and progressions[11].

Ibn Sina divides philosophical sciences into theoretical and practical sciences. Among the theoretical sciences, he distinguishes physics (Ulum al-tabib) and mathematics (Ulum al-riyadi). Ibn Sina divided the science of mathematics into 4 branches, i.e. the science of numbers, geometry, astronomy and music, as well as 6 branches, i.e. the science of addition and subtraction, the science of algebra and al-muqabala, the science of measurement, the science of mechanics, the astronomical table and the calendar (considers it to consist of the science of calendar) and the science of musical instruments[12].

Conclusion. Mathematics has a rich historical basis and is one of the sciences that has not lost its importance even in modern development. Nowadays, the terminology of the field of mathematics constitutes a certain part of the lexicon of any language.

Mathematics, like all other subjects, is constantly developing and improving. Daily life and human activity required the development of this science. Terminological systems belonging to many scientific fields are formed in each language, and these terminological systems have their own period of development, stages of development. Mathematical terminology is also considered as one of the terminological systems that has followed its own path of development.

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