

MATHEMATICS AMONG THE PEOPLES OF CENTRAL ASIA

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The article analyzes the problems of the development of mathematics, the ancient heritage and the creation of a ground for its development in Shark, and the algorithm for solving equations, the algorithm for solving certain types of problems, the role of al-Khorazmi's work "Arithmetic in Hindu numbers" in the development of Europad mathematics.

INTRODUCTION. We talked about the origins of mathematical science among the Babylonians, Egyptians and Hindus. Subsequently, for a thousand years, from the sixth century BC, the development of mathematics mainly took place in Greece. By the end of the fifth century of our calendar, Greek mathematical creativity ceased. Among the Greeks, algebra, called arithmetic, dealt with difficult, abstract questions of number theory. Al-Khorezmi writes in the preface to his book that "he compiled this small work from the easiest and most useful calculation in science and, moreover, one that is constantly required by people in matters of inheritance, hereditary duties, in the division of property, in legal proceedings, in trade and in all their business relationships, in cases of measuring lands, drawing canals, in geometric calculations and other subjects of various kinds and varieties." Three-quarters of the book is devoted to solving practical problems, something that Greek mathematicians completely avoided. The theoretical part of the book is imbued with the understanding that algebra is a general science that solves questions of "various kinds and varieties."

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From the name of this outstanding Uzbek scientist comes the mathematical term “algorithm” (but not logarithm), which currently means any sequence of calculations to solve a certain kind of questions. So, for example, we can talk about an algorithm for solving equations, about an algorithm for solving a certain type of problem, and so on. In the past, arithmetic expressed using the decimal positional number system was called algorithm or algorithmism, since European scientists first learned this arithmetic from the just mentioned translation of “Arithmetic in Hindu Numerals” by al-Khwarizmi. The translation began with the words “al-Khwarizmi on the Hindu account”; the word “al-Khorezmi” took the form “algorism”.

In the following centuries, until about 1200, European peoples had almost no information about mathematics. The clergy were hostile to all science, including mathematics. The Byzantine emperor Justinian placed in his code of laws of 529 a section entitled “On criminals, mathematicians and the like,” which contains the paragraph: “The very reprehensible art of mathematics is completely prohibited.” However, here the concept of “mathematicians” also included fortune-tellers and astrologers who predicted the future from the stars, as can be seen from the law of Emperor Theodosius: “Let no one consult a fortuneteller or mathematician.”

The Dominican monk Cacini in Florence, back in modern times, declared that mathematicians, as the creators of all kinds of heresies, should be burned throughout Christian land. The sciences have been turned into the handmaidens of theology; many advanced scientists ended their days at the stake by decision of church courts (the Inquisition). The head of the Inquisition in Spain (“Grand Inquisitor”) Tomas Torquemada sent the Spanish mathematician Valmes to the stake in 1486 for claiming that he had found a solution to an equation of the fourth degree (an equation containing x^4), which, according to Torquemada, by the will of God, is inaccessible to humans mind. Note that a method for solving these equations was found by the Italian mathematician Ferrari in the middle of the XVIth century. The result of such an attitude towards science was not only the cessation of the progress of science. Even the most learned people of that time ceased to understand the previous science.

From the second half of the 7th century, the Arabs waged grandiose wars of conquest and captured most of the former cultural countries. Trade, navigation, industry, and military affairs required scientific knowledge. From the beginning of the 9th century, intensive translation into Arabic of the cultural heritage of the conquered peoples began. We now know many of the mathematical works of Greek scientists only from their Arabic translations. From time to time, previously unknown works of Greek mathematicians are discovered in Arabic manuscripts even today. One of the last such major discoveries was Archimedes’ work on the regular heptagon, discovered in 1924. This remarkable discovery in the history of Greek mathematics was made after the discovery by the Russian scientist

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A.I. Popadopulo-Karamevs of the previously unknown very important work of Archimedes, published in 1905 under the title "New Work of Archimedes." Important centers of scientific life in the eastern parts of the Arab possessions were the cities of our Central Asian republics: Samarkand, Khorezm (Urgench), Bukhara, Merv and others. The peoples of Central Asia and the Middle East current had a progressive influence on the development mathematics, and major successes have been achieved them in the creation of algebra as a science of equations and in the development of trigonometry as an independent telial branch of mathematics. In addition, significant results obtained they also discussed the issues of simplifying calculations: they vita methods of approximate calculation, extracted calculations of roots, decimal fractions are introduced, etc. On the influence of science in Islamic countries on science

Europe speak terms such as "Arab numbers", "algebra", "algorithm", "digit", "co-Ren", "sine". Are of Arabic origin also many astronomical terms and pain most star names. Study by scientists of Ev- the science of the countries of Islam made it possible to begin the construction build European science on a solid foundation and do not repeat all the previous steps they have covered. shepherds the way.

Conclusion: if the early development period of mathematics caused the development of Egyptian and Babylonian culture, great scientists played a big role in the development of Greek and Roman culture and science, and later, as a result of the development of science, every science became more and more sophisticated. due to the discoveries, it caused him to break apart.

References:

1. Rybnikov K. A. History of mathematics. — M.: Publishing house
2. Department of Moscow University, 1960.
3. History of mathematics from ancient times to the beginning
4. La XIX century: in 3 volumes / ed. A. P. Yushke - M.: Nauka, 1970. – volume
5. Stillwell D. Mathematics and its history. -Moskva - Izhevsk: Institute of Computer Research Vanii, 2004.
6. Bolgarsky B.V. Essays on the history of mathematics. 2nd ed., corrected and expanded - Minsk. : Higher School, 1979.
7. Depman I. Ya. Stories about old and new algebra. L.: Children's literature, 1967.
8. Stroik D. Ya. Brief outline of the development of mathematics.5th ed., revised / translation from German I. B. Pogrebyssky. - M.: Nauka, 1990.