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USE MATHEMATICAL FORMULAS IN ELECTRONIC COMPUTING MACHINES

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ABSTRACT	KEYWORDS
This article summarizes general information about electronic computing machines and the use of mathematical formulas in them..	electronic computing machines, mathematical formulas, electronic devices, etc.

In mechanical computing machines, suitable devices were driven by hand. Now computing machines that carry out this task using electricity have begun to appear. That is why such machines are called electromechanical computing machines. In almost all electromagnetic computing machines, numbers are inserted into the machine using a special button. Such machines will create a ten-button "VK-1" machine in Russia that works like an Odner arithmometer, and later computing machines with enough buttons to perform all arithmetic actions. It should be said that despite the fact that such machines were improved compared to mechanical machines, an expert-laboratory could perform a total of 200 actions in an 8-hour working day. The period of electronic computing machines.

Electromechanical machines, in turn, were unable to meet the needs of the development of 20th-century science and technology. In these machines, the computing process took a lot of time, that is, the need to create a new variety of machines, which would calculate even faster because of the speed of operation and the small accuracy of the operation. Therefore, intensive research was carried out on the use of electronic lamps that set the stage for implementing the above requirements in computing machines. To that end, in 1942-45, the first digital computing machine was created at the University of Pennsylvania, U.S.A., using electronic lamps that could store information. The huge electronic computing machine, which weighs 30 tons, occupies a room of 150 square meters and has 18,000 electronic lamps, has been dubbed "ENIAK". In 1946, American scientist Dj. Neyman (1903-1957) mathematically established the construction of such electronic computing machines. These machines have made a sharp turn in the history of computing technology, contributing to the rapid development of various fields of science and technology. Then, in the United States and great Britain, "EDVAK", "EDSAK", "SEAK", "BINAK", "UNIVAK", and other cars were created. In general, 1950 was the beginning of the development of electronic computing machines. In the Former Union, the first electronic computing machine was developed in 1948 by a team led by Russian scientist S. A. Lebedev. This small electronic computing machine (mesm) was created at the Electronics Institute of the

Ukrainian Academy of Sciences. His shortcomings were relatively small in his memory, his ability to store information in small quantities, his rudeness, and his accuracy in performing actions. In a short period of history, four generations of EHM were created. What is based on, how it is structured, technical characteristics, user-friendly, and other aspects are based on creating generational separations of EHMs.

The first generation of EHMs (1940-1950) includes MESM, BESM-1, BESM-2, MINSK-1, URAL1, URAL-2, and others created by scientists from the Commonwealth of Independent States. All of these machines are built on electronic lamps. They were distinguished by size, abundant consumption of electricity, low speed of actions, inability to store large amounts of information, and lack of confidence. This category of machines performs an average of 10,000 actions per second. It contains only up to 2047 words in memory. The second generation of EHMs (1950-1965) consisted of transistors (semiconductor and magnetic elements), one of the characteristics of machines belonging to this generation, which specializes in the field of application. Second-generation EHMs have made it possible to process data more, faster and more reliably than in the past. The second generation of the EHM includes the following machines: Minsk-2, Razdan-3, M-220, BESM-6, Mir, Nayiri, Minsk-22, Minsk-32, Ural-14 and others. You can use a program that allows you to quickly solve the issues posed in these machines, namely , the sequence of actions that ehM must take to solve the problem. The average speed of such EHMs is 100,000 amalsekund, with up to 10,000 words in memory. Further perfection of electronic computing machines led to the creation of settings that perform various tasks, which in turn required reducing the size of elements and schemes and increasing their reliability in operation, enlarging memory insurance, and further accelerating the speed of operation. Accordingly, microelectronics soon began to appear in a crystal measuring 1 kub.sm, an electronic device that combined at least 5 elements of electronics, or dwarf integrated circuits. Such schemes have set the stage for eliminating a substantial portion of all the shortcomings that exist in second-generation machines and the emergence of new computing machines. An integrated scheme has caused the first made settings to become much smaller. The third generation of EHMs (1965-1975) is characterized by the widespread use of integrated circuits instead of transistors and various precautions. Thanks to the use of integrated schemes, great improvements in the technical and usage characteristics of machines, including invention and an increase in the speed of operation have been achieved. The operation of such machines has become much more efficient and reliable. Their memory capacity expanded to Kbytes 2048.

Since several countries have jointly produced these generation machines, they have been called Single System (ES-?????? ???????) types of machines, whose names begin with the abbreviation "ES": ES-1050, ES-1022 and others. Depending on the type of cars, it was possible to perform up to 2 million different arithmetic actions per second. The development of science and technology has raised the need to create computing machines that can communicate between a person and the EHM. This possibility was realized in emerging fourth-generation cars. Fourth generation of EHMs (since 1975). They use large integrated schemes as an element base, that is, a microscope that combines up to 100,000 elements in a cubic volume of 1cm. Nowadays, great work is being done on the development of fifth-generation machines. Especially noteworthy is the project of the fifth generation proposed by Japanese scientists in the 1980s in this area. This project envisioned the creation of machines of the next era. Japanese scientists say that these generation machines should be able to solve logical issues, "hear" and "understand" oral expressions, translate texts at the speed at which they are reading, and "see",

and "understand." Such computers are intended to be built on large and large integrated schemes. Recently, scientific laboratories in developed countries have experimented with protein molecules. The main element that forms the arithmetic basis of computers is the functions of cells that commemorate in a two-digit system. Of course, it's early to talk about building an EHM in this direction, but if experiments lead to good results, we can also have biocomputers that start a new era of computers. With the structure of computing technology tools and the improvement of their production, new electronic computing machines will continue to emerge. Currently, EHMs can be divided into the following types: micro, personal, mini, medium-speed, high-speed super EHMs. Today, EHMs are successfully used to solve a variety of complex practical issues in physics, mathematics, astronomy, geophysics, technology, and many other fields of science, including the construction of atomic energy, hydroelectric power plants, shipbuilding, space conquest, and many other fields. (Matthew 24:14; 28:19, 20) Today, it is difficult to find an area where EHMs are not used, and in the near future it is expected to develop even wider and deepen human activity.

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