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An Innovative Approach to Teaching the System of Linear Equations Module

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Abstract: In solving the system of linear equations, it is important to improve the ability of students to think quickly, to facilitate the process of deep logical thinking, and to guide them through the algorithm of the problem.

Keywords: System of linear equations, computer technology, electronic textbooks, multimedia tools.

Introduction

Currently, when ICT is developed, in the teaching of the module of the system of linear equations, first of all, it is necessary to explain the basic nature of the examples and problems of this topic to students, and to apply this basic knowledge in practice based on computer literacy. That is, computer technology helps to speed up the calculation process and make the calculation more accurate. At the same time, it makes it easier for us to do some calculations in solving the system of linear equations using the familiar MS Excel program. At the same time, we can also use the Matcad, Maple packages of the Microsoft Mathematics program.

The essence of these packages is that in solving the system of linear equations, it is important to increase the ability of students to think quickly, to facilitate the process of deep logical thinking, and also to lead them through the algorithm of the problem. At the same time, when solving a system of linear equations, traditional methods are used, that is, in the process of solving a system of equations, the Gauss method, Cramer, Matrix, and Kronecker-Kopelli theorems are used. It should be mentioned that Gauss introduced the concepts of (general) and "special" solution in solving a system of linear equations, and was also very involved in finding solutions by the method of successive elimination of unknowns in solving a system of equations. He widely developed the use of the Gaussian method, which is named after him, for systems of equations not only of second order, but also of higher order.

At the same time, Kramer introduced another method of solving systems of equations, calculus using determinants, into science, which helps students to calculate with high accuracy using Kramer's method of solving systems of equations.

Main part

To fundamentally improve the quality of education in the country's schools, vocational colleges and lyceums, higher education institutions due to the widespread introduction of modern information-communication and pedagogical technologies, electronic textbooks and multimedia tools into the teaching process of the system of linear equations module. Special attention is paid to strengthening the educational and laboratory base of educational institutions with the most modern educational and laboratory equipment, computer equipment, as well as to the formation of an effective system of material and moral stimulation of the hard work of teachers and trainers.

In the modern context, information is the exchange of information between people, between people and animate and inanimate nature, especially ICT, and is a scientific concept in a broad sense.

Information technologies are a set of methods and tools for collecting, storing, transmitting, changing, and processing information. The new information technology of education means only the latest information technologies that can be used in the educational process. New information technologies are the provision of services for obtaining and processing information on the basis of ICT by various categories of users. Information and telecommunication technologies in education are a set of methods and methods of information transfer to students using computers and telecommunications, checking knowledge acquisition, processing and using knowledge acquired in real life.

The software is a control environment that responds appropriately to the student's actions. Software will be specially designed or adapted for educational use. Depending on the task of software used in teaching, it is described as follows:

automatic teaching systems based on electronic intellectual textbooks, which ensure interactivity, multimedia, large volume and hypertextity of educational material;

science-oriented environments called micromirs;

laboratory training;

trainers;

reference systems;

computer games.

The automated training system makes it possible to independently master a training course or a large part of it. This system combines the features of a simple textbook, a set of problems, laboratory exercises, a reference book and an expert who verifies the acquired information:

provides an optimal way of learning the material, i.e. allows the student to independently organize the sequence of mastering the theory and developing the skills of solving examples and sample problems, as well as the quality of the acquired knowledge and skills allows self-checking;

inculcates the skills of analysis and research activity;

allows to save the student's time.

A science-oriented environment consists of a package of learning programs that allow you to work with objects of a given class, to understand the relationships between them and to perform operations on objects and relationships, as well as to visualize objects and their properties. Testing programs are designed to check and evaluate the quality of knowledge. They tell the student: to enter the answer as close as possible to the generally accepted form; storage, collection, printing (copying on paper) and statistical analysis of inspection results; regardless of the form of the answer and syntactic (sentence structure) literacy, it should allow to get an adequate assessment. Reference systems are programs designed to store and display various educational information similar to a reference book. In these programs, educational material is placed in a hierarchical order, and it is possible to quickly search for information based on various symbols.

They provide access, storage and reproduction of context information. Video computer teaching technology is a technology that stimulates active learning and knowledge acquisition processes of students. This technology makes it possible to show the verbal and visual forms of educational information together, to adapt the teaching process to the goals. When students are taught individually with a computer, they cannot perform communicative activities in classes, besides, the heuristic aspect of problem-based teaching disappears. Viewing the video-computer model of teaching as an open system, other traditional means of teaching can be added to it. Of course, the weight of verbal-visual and pictorial information may change in each individual case.

All this depends on the content and features of computer and video technology imaging tools and the didactic goals to be achieved in learning this topic. Currently, computers are used in the education system mainly in four areas:

as an object of study;

as technical means of teaching;

in education management;

in scientific and pedagogical research.

Conclusion

In conclusion, it is necessary to educate today's students based on the requirements of today's times. After all, boys and girls born in the age of new technologies are distinguished by a number of common qualities. At a time when our lifestyles, interests and desires are becoming almost similar in the global space, yesterday's teaching methods cannot achieve the goal. We will have the opportunity to raise a highly intellectual generation only when we keep pace with the times. Based on the application of innovative technologies to the educational process, it is possible to increase the effectiveness of education and technological approach to the educational process. And the advantage of this method is that the whole activity teaches the student to think independently and prepares him for an independent life. Studying scientific results and preparing theoretical information for the purpose of using innovative technologies in education can serve to arouse interest in science among students.

In addition, it is appropriate to use interactive methods in the training of young people for the Olympics. Experiments show that giving brief information on scientific works devoted to practical applications of mathematics during training increases their interest in science and broadens their worldview, and causes them to publish scientific works. There are many advantages of computer-based teaching: the time required for students to develop certain skills is reduced; the number of practice tasks increases; the pace of work of students accelerates; as a result of requiring active control by the computer, the student becomes an educational subject; it becomes possible to model and directly demonstrate processes that are difficult for students to observe and observe; it becomes possible to provide the lesson with remote resources using communication tools; communication with the computer takes the character of a didactic game, and with this, students' motivation for educational activities increases, etc.

In the process of computer-based education, education is organized, managed, and controlled according to the relationship between the student and the computer. Organization of computer-based education - establishing a connection between the student and the educational material by means of a computer. Education is designed to create a connection between the student and the learning material. Organization of students' educational work, stimulation of their activity is modeled on the basis of appropriate tools.

The application of information technologies to the educational process leads to the implementation of the principles of a differentiated and individual approach to teaching, and the teacher creates an opportunity for each student to work independently with educational materials on a new topic during the lesson. Students will have the opportunity to fully familiarize themselves with the new material based on the given scheme. The use of information technologies also creates opportunities for distance learning.

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