

METHOD FOR SOLVING PARAMETRIC EQUATIONS

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Abstract

This article talks about the method of solving parametric equations. It is not an easy task to enumerate the features of mathematics related to education, but one of them is extremely important for the perspective of our nation in today's era of fundamental reforms. This means that pupils and students tomorrow's personnel, have the skills to find solutions to difficult and complex issues. After all, any reform is carried out in order to solve a problem that has arisen. The role of mathematics in solving such a problem is incomparable.

Key words: algebra, mathematics, exact sciences, calculation, equation, parametric equation.

In our country, great attention is paid to the development of mathematical education and the science of mathematics. It is not an easy task to enumerate the features of mathematics related to education, but one of them is extremely important for the perspective of our nation in today's era of fundamental reforms. This means that pupils and students, i.e. tomorrow's personnel, have the skills to find solutions to difficult and complex issues.

After all, any reform is carried out in order to solve a problem that has arisen. Solving such a problem can be more complicated than the Poincaré problem in mathematics.

However, it is not a big mistake to say that any management consists of problem solving. It is this ability that mathematics develops and sharpens. In a certain sense, mathematics can be called the science of problem solving. A true math teacher is one who teaches students how to solve problems (note: not a problem solver, but a self-solving teacher).

A parametric equation is an equation in mathematics that expresses some relationship using parameters. A simple example of a parametric equation is an equation from kinematics that expresses the location, acceleration and other properties of a body in motion with a time parameter. In an abstract sense, a parametric equation can be said to be a set of equations.

variables x, a were involved

$$f(x;a)=0$$

let the equation be given. If the problem of solving this equation with respect to x for each real value of a is given,

$$f(x;a)=0$$

an equation is called an equation with variable x and parameter a . Solving an equation with a parameter means finding values of x that satisfy this equation for each value of the parameter a .

An equation that, in addition to an unknown quantity, also contains another additional quantity, which can take on different values from a certain region, is called parametric. This additional value in the equation is called a parameter. In fact, many equations can be written with each parametric equation.

1. Find the domain of the equation.
2. We express a as a function of x .
3. In the xOa coordinate system, we build a graph of the function, $a=f(x)$ for those x values that are included in the domain of definition of this equation.
4. We find the points of intersection of the line, $a=c$, where $c \in (-\infty; +\infty)$ with the graph of the function $a=f(x)$. If the straight line, $a=c$ intersects the graph, $a=f(x)$, then we determine the abscissas of the intersection points. To do this, it is enough to solve an equation of the form, $a=f(x)$ with respect to x .

We write down the answer.

The general form of an equation with one parameter is as follows:

$$F(x,a)=0$$

For different values and the equation $F(x, a)=0$ can have different sets of roots, the task is to study all cases, find out what will happen for any value of the parameter. When solving equations with a parameter, one usually has to consider many different options. Timely detection of at least some of the impossible options is of great importance, as it frees you from unnecessary work.

Therefore, when solving the equation $F(x,a)=0$, it is advisable to understand the *ODZ* as the range of acceptable values of the unknown and the parameter, that is, the set of all pairs of numbers (x,a) for which the function of two variables $F(x,a)$ is defined (makes sense). Hence the natural geometric illustration of the *ODZ* in the form of a certain region of the xOa plane. *ODZ* of various expressions (under the expression we will understand the alphanumeric record):

1. The expression in the denominator must not equal zero.

$$\frac{f(x)}{g(x)}; g(x) \neq 0$$

2. The radical expression must be non-negative.

$$\sqrt{g(x)}; g(x) \geq 0.$$

3. The radical expression in the denominator must be positive.

$$\frac{f(x)}{\sqrt{g(x)}}; g(x) > 0$$

4. For the logarithm: the sublogarithmic expression must be positive; the base must be positive; the base cannot be equal to one.

$$\log_{f(x)} g(x) \begin{cases} g(x) > 0 \\ f(x) > 0 \\ f(x) \neq 1 \end{cases}$$

Algebraic way to solve quadratic equations with parameter $ax^2+bx+c=0$

The quadratic equation $ax^2+bx+c=0, a \neq 0$ has no solutions if $D < 0$;

A quadratic equation has two different roots when $D > 0$;

A quadratic equation has one root if $D = 0$

Have you ever thought: how does a person solve a problem, how does his mind work in the process of solving a problem? Of course, it doesn't take a lot of intelligence to solve a problem similar to the one we met before. The ability to solve an unfamiliar problem is important. It is necessary to look for an idea to solve such a problem. This ability is the core of mathematical thinking, and this is the main benefit of mathematical education to society. Examples of countries that have achieved high development today clearly confirm this.

In mathematics, the method of solving difficult, original (that is, unfamiliar) problems is called heuristics. Heuristics is essential for every researcher and every creator. It is clear to everyone that the current period of development and the future of the world civilization presents difficult and acute problems to each country and nation. The successful solution of such issues depends on the intellectual potential of this nation, in particular, the ability of personnel to find the right solution to difficult and complex issues.

Here it is useful to clarify one issue. The 21st century can be called the age of digitization without hesitation. Digitization is based on programming for gadgets. A computer program is an algorithm written in a programming language.

Algorithm is actually a rule for solving a certain type of problem, therefore it is a branch of mathematics. It is important to clearly state the problem itself, and this task is also related to mathematics. If an algorithm for solving a problem is built, it is not difficult to turn it into a program.

Military specialization is algorithmization and programming, one of the current research areas is mathematical modeling, a student with an average mastery of mathematics can become a good programmer and strong programmers come only from students who have studied mathematics well.

The ultimate goal of President Shavkat Mirziyoyev's special attention to mathematics education and the development of mathematics is to turn Uzbekistan into a great country and equip our youth with appropriate knowledge and skills.

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