CASES IN WHICH INTEGRAL AND FRACTIONAL PARTS OF THE UNKNOWN ARE MULTIPLIED TOGETHER IN EQUATIONS

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Abstract:
The main problem to be studied in this topic is about the system of equations. A particular system of such equations can be considered as a general theory of operation. Solutions to such a system of equations are almost never seen in college or high school textbooks. Therefore, I think it is important for us to consider this topic in a wider scope. It can be said that these and similar issues are not found in almost any Uzbek literature. This means that there is no possibility of deep change. I hope that this article will be a useful guide for a deeper study of these topics.

Keywords: system, interval, Gaussian method, discontinuity, generality, general solution, unknown, whole part, fractional part, variable.

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The goal of this article is the invisible part of the subject of the system of equations, that is, the system of equations with the whole and fractional part of the unknown. The solutions of such problems can be calculated in several ways. In this article, we will look at solving the equation using the Gaussian method.

It became clear from above that one of the unusual questions on the subject of the system of equations that we are studying is $\begin{cases} a[x]+b\{y\}=c \\ z[y]+t\{x\}=e \end{cases}$

let the examples of the form be given. First, let's have a general understanding of the system of equations.

We can say system - totality.

A system of equations is a generalized representation of equations consisting of two or more unknowns, the solutions of which are common. Their general appearance

$$\begin{cases} a_{11}x_1 + a_{12}x_2 + a_{13}x_3 + \ldots + a_{1n}x_n = b_1 \\ \ldots \\ a_{n1}x_1 + a_{n2}x_2 + a_{n3}x_3 + \ldots + a_{nn}x_n = b_n \end{cases}$$

it will be visible.

So, it can be seen from here that n variables can participate in the system of equations. Above is a general view of the system of equations, where , a_{11},a_{12}, ... a_{1n} are the coefficients of the system of equations in front of the unknowns, and these are fixed numbers. $x_1, x_2 \ldots x_n$ are the unknowns or variables that we need to find. and are called free terms. The reason for this is that if we move the numbers on the right side of the equation to the left side of the equation in the general view we saw above, they will become the unknown part of the equations. This means that they are free.

Now let's express the variables in this system of equations x_1 the expressions of other variables in the form of the fractional and the whole part of the unknown, and below for the case where the unknown, the variable of such problems is two, for solutions are provided.

If we look at the above system of equations. First, let's consider the theoretical part of solving the system of equations. To solve this type of system of equations, let's first try to eliminate any one of the fractional parts in the system of equations, leaving only the whole part of one unknown, and we will get to create a system of equations using the properties of the whole part. Solving the usual system of inequalities is not a problem.

To us

$$\begin{cases} a[x] + b\{y\} = c \\ z[y] + t\{x\} = e \end{cases}$$

given a system of equations of the form By multiplying the top and bottom of the system of equations by two arbitrary numbers, using the Gaussian method, adding the top and bottom rows, we arrive at the equation in which the entire part of "x" or "y" is involved. We know that the solution of the equation [x]= a is x [a; a + 1). So let's solve the system of equations according to these:

given

$$\begin{cases} a[x] + b\{y\} = c \\ z[y] + t\{x\} = e \end{cases}$$

First step

$$\begin{cases} a[x] + b\{y\} = c \setminus m \\ z[y] + t\{x\} = e \setminus n \end{cases}$$

Let's change both parts of the system of equations in the form of multiplication to a different form and add them. Let's find [x] from the result. Here we use the property [x]+{x}= x. This is the main property of dividing a number into parts. After doing the above, let us have some equation equal to [x]. Let this equation be:

After [x] is represented as = , we use the properties of [x] to represent the inequality. We know that [x] represents the whole part of the number and here represents the whole part of the unknown. It goes without saying that if an equation of this type is formed, the solution of the equation is determined in the interval. That interval can be at least equal to the number being equalized and at most equal to 1 plus 1. Returning to the system of inequality in which inequality is used:

$$\frac{f(x)+g(y)}{l} \le x < \frac{f(x)+g(y)}{l} + 1$$

At this point, it is necessary to pay special attention to the topic of inconsistencies. It should be said that inequality means inequality. The condition for solving the inequality is first to introduce a system of inequalities and then to arrive at a set of solutions through it.

Let's try to solve the above inequality in the form of a system of inequalities:

$$\begin{cases} \dfrac{f(x)+g(y)}{l} \le x \\ \dfrac{f(x)+g(y)}{l} + 1 > x \end{cases}$$

We cannot lose the denominator while solving the system of equations. Because we know that whether the denominator is positive or negative changes the signs of inequalities.

$$\frac{f(x)+g(y)}{l} \le x$$

$$\frac{f(x)+g(y)}{l} - x \le 0$$

$$\frac{f(x)+g(y)-xl}{l} \le 0$$

$$\frac{f(x)-xl}{l} + \frac{g(y)}{l} \le 0$$

$$\frac{f(x)-xl}{l} \le \frac{g(y)}{l}$$

We can find the connection between x and y from the above sequence of operations. After finding the connection between x and y by performing the sequence of operations, we can use the method known as "substitution" to any one of the system of equations we can go from two unknowns to one unknown by putting the found connection. As a result of this, an equation is formed that is connected only to x or only to y. By solving this equation, we finally get the value of one of the unknowns. Using this unknown we find the second unknown. We arrived at the solutions of the equation in this way.

In conclusion, to solve the above system of equations, we first eliminate the fractional part of the unknown by calculations, leaving only the fractional part of the unknown. Using the equations obtained through these operations, we arrive at the inequality and from it to the system of inequalities. Using the system of inequalities, we can find the interval that x and y can take, and the solutions in these intervals will be the solution that also satisfies the above system of equations. So it can be concluded that the answer of the above system of equations is in the intervals. This is very interesting. The reason for this is that we used the entire unknown part while solving our equation. We know that the solution of the well-known partial equation also appears in intervals. So it is not unusual for the solution of the system of equations to appear in intervals.

References:

1. Mihaly Bencze - Inequalities (manuscript), 1982.
2. Collection of mathematical magazine "Octogon" (1993-2006).
3. Shokirova - Multiple and curved integrals (1992).
4. Ismailjon Hayitaliyev - Whole and fractional numbers (manuscript).
5. Vysshaya mathematik dlya ekonomistov. Pod editorial N.Sh. Kremera - M.: YuNITI, 2001, st. 601.
6. Bekboyeva N.M., Adambekova G.A. "Methodology of teaching mathematics in primary grades" Tashkent teacher 2016
7. Jumayev M.E., Tajiyeva Z.G. "Methodology of teaching mathematics in primary grades" Tashkent science and technology 2015
8. Ismailova D. And others "Methodology of teaching mathematics in primary grades" Text of lectures Termiz 2015
9. Jumayev M.E. "Laboratory training on the methodology of teaching mathematics in primary classes" Tashkent: "Yangi Asr Avlodi" 2006
10. Young mathematician encyclopedic dictionary. Tashkent. "Encyclopedia of Uzbekistan", 2011.
11. Kordemsky B. A. Mathematical smekalka. Moscow. "Nauka", 1991.
12. Maksimovskaya M. A. Testy po mathematics 1-4 class. Moscow, "Olympus", 2009.
13. Kuznetsova L. V., Safonova N. V. Mathematics 3rd class, Tematicheskie testy, Moscow, "Prosveshchenie", 2010.