**SOLVING A SYSTEM OF TWO LINEAR EQUATION WITH TWO UNKNOWNS BY USING A METHOD OF REPLACEMET AND METHOD OF OPPOSITE COEFFICIENTS**

Conjunction of two equations with two unknowns is called a system of two equations with two variables and we represent it as:

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If both equations in the system are linear equations with two variables, then that system is still called a system of two linear equations with two variables.

Every system of two linear equations in two variables can be represented as

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Both system of equations are equivalent, in a given area defined by , if they both have equal number of solutions.

The transformations that lead to equivalent systems of equations are based on the following theorems:

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| **Т1** АIf any of the equations of a given system is replaced by a equation equivalent of it, we are left with a system that’s equivalent of the previous one. |

***Method of replacement***

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| **Т2** The system of equations is equivalent to the system  |

***Example1.*** Solve the system by using a method of replacement со

Using the theorems of equivalence we have the following:

In the first equation the unknown we express it with the unknown and we swap in the second equation by which we get a linear equation with one unknown

Solution to the system is .

***Example2.*** Solve the system

The system is defined for only those values of the unknowns for which it applies: .

The solution to the system is: .

***Method of opposite coefficients***

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| **Т3** The system of equation is equivalent to the system  |

The application of this theorem enables us the to transform to a equation with one unknown..

***Example3.*** *S*olve the system with method of opposite coefficients the second equation is multiplied by 2, so that the coefficients in front of the unknown can be opposite numbers.

Solution to the system is the pair .

***Example 4.***Solve the system

We transform the system and we multiply the second equation with -2, so that they coefficients before the unknown are opposite numbers.

Solution to the system is the pair .

***TASKS***

Using a method of replacement solve the following systems:

Using a method of opposite coefficients solve the following systems: