SOLUTION OF FIRST DEGREE EQUATIONS WITH ONE UNKNOWN

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Abstract

This article presents first-order equations with one unknown and methods of solving them. A variety of examples and properties are used to solve these equations. Various interactive methods were used to explain the topic. The main task of using them is to interest and attract students to the topic.

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Enter. Today, in a number of developed countries, the methods that form the basis of great experience in the use of modern pedagogical technologies guaranteeing the effectiveness of the educational process are called interactive methods. Interactive educational methods are currently the most common and widely used methods in all types of educational institutions. At the same time, there are many types of interactive educational methods, suitable for the purposes of implementing almost all tasks of the educational process. In practice, it is possible to select the ones that are suitable for specific purposes and use them accordingly. This situation has created the problem of choosing the right interactive educational methods to achieve certain goals. For this purpose, the lesson process should be organized rationally, the teacher should increase the interest of the students and constantly encourage their activity in the educational process, divide the educational material into small pieces and brainstorm to reveal their content. , it is required to use methods such as working in small groups, discussion, problem situation, reference text, project, role-playing, and encouraging learners to do practical exercises independently. The interactive method is to solve an activity or a problem in a mutual dialogue, in the course of thinking in a mutual debate, with unity. The advantage of this method is that the entire activity teaches the student to think independently and prepares him for an independent life. When choosing interactive methods of teaching, the purpose of education, the number and capabilities of students, the educational conditions of the educational institution, the duration of education, the pedagogical skills of the teacher, etc. are taken into account. Interactive methods mean methods that activate learners and encourage them to think independently, with the learner at the center of the educational process. When these methods are used, the teacher invites the learner to actively participate. The learner is involved throughout the process. The benefits of the learner-centered approach include: more effective learning; high motivation of the learner; consideration of previously acquired knowledge; aligning the educational process with the goals and needs of the learner; support of the learner's initiative and responsibility; learning by doing; creation of conditions for two-way feedback. Thus, the use of interactive methods in the process of teaching subjects has its own characteristics.

2. Main part. As we know well from the school mathematics course, Solving Equations in One Unknown is a topic that comes after Equation and its Root, and students have detailed knowledge about equation and roots of equation. . In this case, we use the "Svetafor" method to reinforce the previous

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topic before moving on to the new topic statement [1-2].

Students will be divided into three groups, the groups will be asked questions and the results will be evaluated with excellent, good and satisfactory cards.

Quick Questions:

Group 1.

1. What is an equation?

2. Does the equation have a root?

$$5x + 2 = 5x + 9$$

3. and are the equations equally strong?

$4(x - 8) = 16$ and $x - 8 = 4$

Group 2.

1. What is the root of the equation?

2. Does the equation have a root?

$$435 - 3y = 3y$$

3. and are the equations equally strong?

$\frac{3x}{5} = 21$ and $0{,}3x - \frac{1}{2} = 10$

Group 3.

1. What do you mean by solving an equation?

2. Does the equation have a root?

$$-4x + 91 = 92 - 4x$$

3. and are the equations equally strong?

$1{,}1x = 4$ and $11x - 40 = 0$

Students answer these questions, the teacher listens to the students' answers and shows the above card based on their answers.

The advantages of using this method are that students express their opinions openly, and it is possible to find out how well they have understood the previous topic.

When the teacher is sure that the students are ready to master the new topic, he can move on to the description of the new topic.

$ax = b$ equation in the form is called a linear equation with one unknown. Such equations are solved using properties.

Property 1. It is possible to change the sign of the desired term of the equation to its opposite and transfer from one part to the other part. Property 1 implies that it is possible to move from one part of the equation to the other by changing their works to their opposites. Let's say so $a = b + m$. In that case

$$a + (-m) = b + m + (-m); \quad a - m = b.$$

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Let's see how these properties of equalities are used in solving equations.

Problem 1. Solve the equation. $9x - 23 = 5x - 11$

we assume that the x number is the root of the given equation, that is, the x number in which the equation becomes a true equality.

We move the unknown term to the $5x$ left part of the equation with " – " sign, and the -23 term to the right with " $+$ " sign. As a result, the correct equality is formed again:

$9x - 5x = 23 - 11.$

Condensing similar terms in both parts of the equation,

$4x = 12$

we form the equation

Dividing both sides of this equation by 4 , we find that $x = 3$

So, assuming that the 3 equation has a root, we saw that this root can only be equal to the number. equal to

$9 * 3 - 5 * 3 = 23 - 11$

Hence, the given equation has only one root: $x = 3$

When writing the solution of the 4 equation, it is not necessary to make detailed written explanations, as in solving problem 1.

Problem 2. $5x + 17 = 2x + 5$ the solution of the equation can be written as:

$5x + 17 = 2x + 5, \ 3x = -12, \ x = -4.$

Answer : $x = -4.$

Property 2. Both sides of the equation can be multiplied or divided by the same non-zero number.

Problem 3. $\dfrac{5x}{2} - \dfrac{x-3}{3} = 1 + \dfrac{x-5}{6}$ solve the equation.

We multiply both parts of the equation by the common denominator of the fractions, that is, by 6. In that case

$\dfrac{5x}{2} \cdot 6 - \dfrac{x-3}{3} \cdot 6 = 1 + \dfrac{x-5}{6} \cdot 6 , \ 15x - 2(x-3) = 6 + (x-5).$

We open the parentheses and condense similar terms:

$15x - 2x + 6 = 6 + x - 5, \ 13x + 6 = x + 1,$

from this

$12x = -5, \qquad x = \dfrac{-5}{12}$

In the considered examples, each equation has one root. But in some cases, one unknown equation may have no roots or may have infinitely many roots. Let us give an example of such equations [3-4].

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Problem 4. Show that the equation of problem does not have roots.

$$2(x+1) - 1 = 3 - (1 - 2x)$$

We simplify both parts of the equation:

$$2x + 2 - 1 = 3 - 1 + 2x, \quad 2x + 1 = 2 + 2x,$$

from this

$$2x - 2x = 2 - 1, \quad 0 \cdot x = 1.$$

This equation has no roots because its 0 . The left side of x is zero, and the right side is 1, but not 0.

Answer: the equation has no solution.

Problem 5. Show that the equation has infinitely many solutions.

$$3(1 - x) + 2 = 5 - 3x$$

Let's simplify the equation: $3 - 3x + 2 = 5 - 3x; \; 5 - 3x = 5 - 3.$

The last equation is true for any value of Therefore, the desired value of will be the root of this equation.

Answer: the equation has infinitely many solutions.

After the students understand the new topic, examples are used on the board one by one. In this interval, the teacher can bring news about the science of mathematics and information about the contributions of our great scientists to the science of mathematics. We use another method in order to find out how much the students have understood the lesson and to further strengthen the new topic. The name of this method is called "One step towards the goal". The purpose of using this method is to help each student understand and better understand a new topic. Divide the board into 3 parts, divide the class into 3 groups, draw 3 horizontal lines on the board and mark them with numbers from 0 to 10. We tell the students which ones they will work on from the examples in the book, and we separate the students from each group who are not actively participating in the lesson, who have difficulty understanding the topic, and put them on one board. The rest of the students work in their notebooks. The more students of each group work on examples in the notebook and the more students from that group work on the board understanding the example, this means that they are moving from negative to positive, i.e. from 0 to 10 (from left to right). At the end, the group that reaches 10 quickly, i.e. the finish line, will be the winner [5-6].

The achievement of our method is that it helps the teacher to achieve his current goal, i.e. to deliver the topic to the students in depth and to help every student to understand the new topic. It is no exaggeration to say that there are no disadvantages of this method. The method increases students' quickness, intelligence and enthusiasm. We think that this method is one of the great methods that can be used in any science. During the lesson, students are evaluated and no student is left out.

Examples are as follows:

1-group	**2- group**	**3- group**
1. $11x = 50$;	1. $-9x = 243$;	1. $4x = 0,24$;
2. $9x = \frac{2}{5}$;	2. $3x = 2\frac{1}{7}$;	2. $\frac{1}{2}x = 3$;
3. $25x - 1 = 9$;	3. $3x - 5 = 10 - x$;	3. $4x + 4 = x + 5$;

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4. $5x + 3(3x + 7) = 35;$ 4. $8x - (7x + 8) = 9;$ 4. $8y - 9 + 5 = 12y;$

We use the "Find a match" method to strengthen the new topic. In this case, the students solve the examples on the topic and mark the answer.

№	Equation		Root	Compatibility
1	$9x - 1 = 0,8$	A	$x = -12$	
2	$2x = 3x - 7$	B	$x = 0,2$	
3	$5x + 49 = x + 1$	C	$x = -0,25$	
4	$8x = -2$	D	$x = 0,2$	
5	$4(x - 1) = 5(x + 1)$	E	$x = 2,3$	
6	$-5x - 7x = 8x - 46$	F	$x = -9$	
7	$0,5x + 0,6 = 0,7$	G	$x = 7$	

The advantages of using this method are that it allows students to remember or reason about the correct answers.

At the end of the lesson, the scores of each group are summed up and the winning groups are determined and announced, students who actively participated in the lesson are encouraged and evaluated [7-9].

After the teacher evaluates the students, homework is given and they are asked to repeat the topic.

Conclusion. In conclusion, it can be said that by using the information presented in the article in the process of teaching the topic "Solving equations of the first order with one unknown" to schoolchildren, the lesson can be used to strengthen the previous topic, explain a new topic, learn about the topic. It is possible to organize parts of knowledge strengthening. For this, it is necessary to use different methods during the lesson. In this article, the "Traffic light" method is used to strengthen the previous topic. The advantage of this is that it allows you to find out what the students think. If many people have the same opinion about the answers to the difficult questions, the interest in the exercise will disappear. "Find a match" method was used to strengthen the new topic. The advantage of this is that it allows students to test their knowledge.

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