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Professionally Directed Learning Of Mathematics At School With The Purpose Of Increasing Interest In The Subject

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ABSTRACT

This article addresses the problem of increasing interest in teaching a school mathematics course through the use of professionally-oriented education in problem-solving.

KEYWORDS

Mathematical modeling, professionally-oriented teaching, mathematical style, intuition, logical thinking.

INTRODUCTION

The trend of the mathematization of all branches of activity, characteristic of our time, has significantly increased the role of mathematical knowledge as a means of application in various fields of science, production techniques, and as an element of general human culture. In this regard, the

problem of improving the quality of mathematical education of schoolchildren acquires special importance. The transition to new stages of economic development of our society reveals many educational problems and students should not stay away from this. One of the tasks of the content of the school course "Mathematics" is the acquisition by

students of a certain training in the ability to use mathematical knowledge in practice, in the development of mathematical intuition, in the education of mathematical culture. At the same time, the student must see the need for each topic of the mathematics course in his future life, no matter what profession he chooses. It enhances your desire to learn math. The most effective means of developing the mathematical activity of learning is learning through tasks. For the student to be able to independently replenish the stock of knowledge and skills, to be interested in what is being studied, it is necessary to develop a mathematical style of thinking, teach not to memorize, but to understand what has been learned, check every step of your reasoning and logical conclusions, and also show the importance of mathematical knowledge in any profession.

THE MAIN RESULTS AND FINDINGS

In a professionally directed mathematics assignment, the content is presented as educational material of a professional nature. The use of professionally-oriented tasks in teaching mathematics at school, we contribute from an early age to the formation of the ability to transfer fundamental knowledge into professional life situations.

The process of solving professionally-oriented tasks consists of several steps:

- Informational stage - studying the professional content of the problem.
- Translation of the conditions specified in the tasks into mathematical language
- Mathematical modeling - creating a mathematical model of the problem under consideration
- Model study
- Choice (decision making)

Analysis (ability to use the results of this task)

Examples of professionally oriented tasks and ways to solve them.

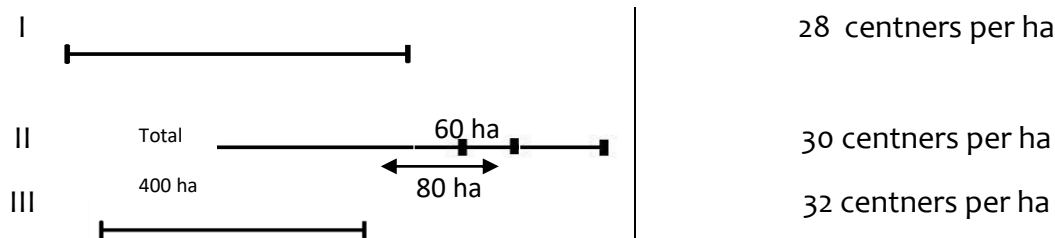
Task 1.

Sowing of cotton was carried out on arable land, consisting of 3 plots, with an area of 400 hectares. If the area of 1 plot is 60 hectares less than the second, and the area of the second is 80 hectares more than the third, and 28 hectare of cotton per hectare were harvested from the first plot, from the second plot 30 hectares per hectare, 32 hectares of raw cotton per hectare were harvested from the third plot. Find out how many tons of cotton are harvested from all arable land.

A summary of the condition could be like this:

Plot	Area in ha	Productivity ints
I	60 ha less II	28
II		30
III	80 he less II	32

The graphic diagram can be like this:



The search for a solution to the problem is carried out analytically and synthetically.

teacher asks new questions. These questions are again matched by the students, or new questions are posed by the teacher.

Analysis of the solution to a problem begins with a problem question that the teacher asks the students. Students select data that can help answer the question. If there is no numerical data in the condition, then the

This "decomposition" of the problem conditions continues until they reach the question, the answer to which is all the data in the condition.

The analysis can be written in the form of a table.

To know this	It needs to be determined
How many center of cotton were harvested?	What is the area of each site, how much was collected from each site
What is the area of the I site	What is the area of the II site, and how much I am less than II (by 60 hectares) by condition
What is the area of the III site	What is the area of the second site, and how much is III less than the second (by 80 hectares) according to the condition

As a result of the analysis, a plan for solving the problem is obtained. The most difficult moments in solving a problem are motivated by an equation.

In our case, paying attention to the graphic representation of the problem, we bring the students to the conclusion that area II of the site should be taken as unknown. This choice of the unknown leads to the following reasoning:

- if the area of the II plot is x ha,
- then the area of the I site $(x-60)$ ha,
- and the area of the III site $(x-80)$ ha;

then the area of three plots $(x + (x-60) + (x-80))$ hectares, since by condition the area of three plots is 400 hectares, you can write the equation

$$x + x - 60 + x - 80 = 400$$

$$3x - 140 = 400$$

$$3x = 540$$

$x = 180$ ha is the area of the II site.

Area I plot $x - 60$ ha = 180 ha - 60 ha = 120 ha

Area III plot $x - 80$ ha = 180 ha - 80 ha = 100 ha.

Now that we know the area of each plot and the yield from 1 hectare on each plot, we can find the answer to the question. How much cotton are determined in plot?

1) C I plot $28 \cdot 120 = 3360$ ts

2) C o II plot $30 \cdot 180 = 5400$ ts

3) C III plot $32 \cdot 100 = 3200$ ts

Total $3360 + 5400 + 3200 = 11960$ ts

Answer: a total of 11960 ts of raw cotton was harvested.

This task was, for the agricultural sector.

Task 2. The task from the field of jurisprudence.

To obtain a certificate with a stamp application, you must withhold stamp tax at 15% of the value of the minimum wage. If the minimum wage in Uzbekistan is 440,000 sum, then how much is it necessary to withhold stamp tax for a certificate with a stamp application.

Solution: To find $p\%$ of a , we divide a by 100 and multiply p .

In our case $\frac{a}{100} \cdot p \Rightarrow p = 15\% \wedge a = 440000 \Rightarrow \frac{a}{100} \cdot p = \frac{440000}{100} \cdot 15 = 4400 \cdot 15 = 66000$ sum.

Answer: 66,000 sums are withheld for stamp tax.

Task 3. The task for the sphere of finance.

The bank offers its depositors two types of banking services. In the first form, the annual rate is 18%, calculated using the formula of simple interest. The second type of service is the annual rate of 14% but is calculated using the compound interest formula. If a depositor donates money in 1,000,000 sum or 3 years, then what services are more profitable for it to use.

Explanation: $J = \frac{Crn}{100}$ – simple percent formula, C – the amount included, r – god rate in percentages, n – number of years, J - percentage contribution paid from the initial amount of money.

The formula for compound interest $J = A - C$, here A is the final balance and it is calculated as follows: where C is the initial amount of money, r is the annual rate of interest, n is the number of years, J is the interest paid on the initial amount of money.

Decision:

$$C = 1000000 \text{ sum}$$

$$r_n = 18\%$$

$$r_c = 14\%$$

$$J_n - ? \quad J_c - ?$$

$$J_m = A - C = 1481544 - 1000000 = 481544 \text{ cўmov}$$

1) We count in simple percentages

$$J = \frac{Crn}{100} = \frac{1000000 \cdot 18 \cdot 3}{100} = 540000 \text{ sum}$$

In compound percentage we count $A = C \left(1 + \frac{r}{100}\right)^n =$

$$1000000 \cdot \left(1 + \frac{14}{100}\right)^3 = 1000000 \cdot (1,14)^3 = 1000000 \cdot$$

$$1,481544 = 1481544 \Rightarrow$$

Answer: means that it is more profitable for the depositor to use the services of simple interest when depositing in 3 years.

When solving this problem, students got acquainted with concepts such as interest, simple percentage, compound percentage, annual percentage, and they also had the opportunity to imagine the application of mathematics in life situations and they develop the ability to apply mathematical formulas in real life.

CONCLUSION

One of the main tasks of teaching mathematics at school is to develop students' ability to reason, actively approach each mathematical educational material and competently solve mathematical problems, show the importance of mathematical knowledge in a future life, no matter what profession the student chooses in the future, as well as the formation of skills to apply the knowledge gained in practice. The use of professionally oriented teaching in mathematics lessons at school, instilling interest in the study of the subject, increases the efficiency of the process of teaching mathematics.

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