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Methods Of Solving Various Types Of Problems From Algebra To Science

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ABSTRACT

The active use of interactive methods, including the widespread use of trends in improving the quality of teaching mathematics and physics in educational institutions of many foreign countries, which are recognized for the high quality of teaching, contributes to the development of students skills in solving and choosing problems in physics in the course of mathematics, the formation of their skills of creative thinking and professional orientation on the basis of interdisciplinary connections. Therefore, the article describes a methodology for choosing, constructing and solving various types of interdisciplinary algebra problems.

KEYWORDS

Demonstration, interdisciplinary, mathematical-problematic, educational technologies, flow, speed, path, time, event, comparison method, situation.

INTRODUCTION

On the basis of scientific and technical achievements, technologies for teaching specific subjects are being improved. It is recognized that attention to the education

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system on a global scale is a guarantee of development of the economy for all countries, ensuring the well-being of society.

It is based on the fact that the role of issues is important for students in the acquisition of mathematical knowledge, motivation, the formation of independent creative activity. In accordance with the definitions of the concepts of issue and creative issue, the concept of "educational creative issue" is viewed as a goal in the quality of innovation for students. Solving educational and creative issues requires students to apply their thinking experiences and practical actions. This is in turn the direction of active acquisition of knowledge, skills and skills.

ANALYSIS OF LITERATURE ON THE TOPIC

In the article, we will talk about the main approaches to the formation of students 'creative abilities, as well as about the possibilities of problematic non-standard issues in the development of students' abilities.A.Attention is paid to krutesky's fundamental scientific hypothesis.

It is worth noting that in the process of teaching mathematics, problematic issues are considered as separate manifestations of educational creative issues, the knowledge acquired before solving such issues is deepened, strengthened, the experience of applying knowledge in a new situation, the qualities of formed thinking and the skills of thinking are improved.

In the process of teaching mathematics, a system of psychological, pedagogical and methodological approaches is formed, which will be necessary in the process of solving non-standard issues, in order to clarify the peculiarities of the development of students ' creative abilities. Solving problems in the process of teaching mathematics is the basic form and means of organizing the mathematical activities of students. Figuratively speaking, solving issues forms the core of teaching mathematics.

ANALYSIS AND RESULTS

In the process of teaching mathematics, issues are used to determine and implement the purpose of education, to determine the content of education, to describe a new topic, to determine the degree of repetition and assimilation of the mentioned topic, to formulate, develop, generalize and strengthen the necessary knowledge, skills and qualifications in the students, to develop independent creative thinking activities and abilities in The most important thing is that the purposeful use of non - standard, practical-applied, natural-scientific content issues is the main tool in the formation of logical thinking, scientific worldview in students and the development of personal qualities in them.

A well-known mathematician and pedagogue D.As Poya pointed out, "solving the issue is not only standard issues, but also issues that require independent thinking, sound, original thinking, resourcefulness. Therefore, the main task of the school course of mathematics is to pay attention to the methodological aspects of the process of solving problems.

Today, due to the fact that the main task of teaching mathematics is the formation and development of the skills of students ' educational activities, the idea of a problem-oriented approach began to expand. Solving

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problems is an important view of educational activity, students master the subject of education, in particular, the theoretical basis of mathematics, practical skills, creative and independent thinking methods.

Due to the lack of adequate use of problem solving in the practice of teaching mathematics, further research and research is needed to improve problem solving. Solving the issuetiradi formulate the depth, elasticity, stability, independence of the thinking activity of the reader.

In solving the above problems, it is necessary to use a certain number of categories of base issues aimed at the goal. The formation of general approaches to the solution of issues in the students, the way in which the student himself can design and discover the method of solving the issue, is an important quality indicator of the characteristics and requirements for the implementation of the problem approach.

In the lessons of Algebra, solving issues related to physics in different ways affects the development of the dynamic (mobility) of mental activity, the elasticity of thought, the formation of an approach to solving a problem in students. All this contributes to the development of creative activities and abilities in students, the formation of skills for moving in unfamiliar situations.

Due to the content of specific abilities, students who have embodied mathematical abilities-are called "pupils with abilities from mathematics", and the following main components of mathematics iqtidor were distinguished:

1. Motivation is an internal factor that directs a person to study or to the realization of a single goal. 2. Creativity-intuition, resourcefulness, oddity. 3. Attention, diligence and caution. 4. Unusual or moderately high abilities. 5. Ability to analyze and synthesize. 6. Ability to compare. 7. The ability to logically build a chain of processes that lead to the solution of the issue. 8. Ability to abstract. 9. Ability to summarize. 10. Ability to concretize. 11. Ability to classify. 12. Mathematical memory. 13. The ability to imagine space.

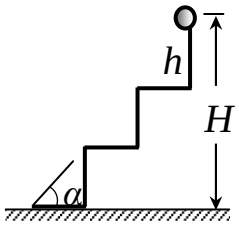
Below we discuss how to solve different types of problems.

1-for instance. The cobble fell from the rolling three paws, the height of the staircase was 0,9 m. The height of each leg (h) is equal to its width. The slope of the stairs to the horizon is 450. Find the way and the migration of the cobweb.

Known: $h=0,9$ м; $\alpha=45^{o}$;

Must find: s - ?, Δl - ?

Solution: from the drawing of the matter it is possible to see that the height of the stairs is h=H/3. If the ball rolls without jumping, then the path through it is equal to the height of the jump and the sum of the E is equal to the tripled:



1- picture

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$$s = 3\left(\frac{H}{3} + \frac{H}{3}\right) = 2H \qquad (1)$$

If the straight line connecting the starting and final States of the coupling is called Δl (migration), then from the picture 1

$$sin\alpha = \frac{H}{\Delta l} \qquad (2)$$

furthermore

$$\Delta l = \frac{H}{sin\alpha} \qquad (3)$$

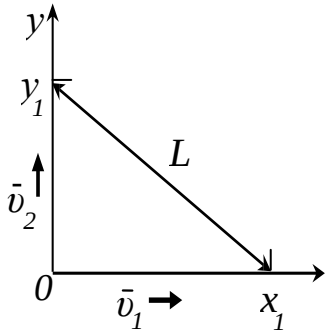
Answer: *s=1,8 м, Δl=1,27 м.*

2-for instance. The distance between them was 150 m when the cyclist and the passenger moved 1 minute vertically from one point to another. If the speed of the cyclist is 3 times greater than the speed of the passenger, find the speed of the cyclist.

Known: *t=60 s, L=150 м, v_1=3 v_2;*

Must find: *v_1 - ?*

Solution: let the cyclist move along the axis of the Ox, and the piano along the axis of the Oy. Then t after the time they will be at the point where the coordinates are respectively x_1 and y_1:



2- picture

$$x_1=v_1t,\ y_1=v_2t, \qquad (1)$$

If t is the distance between them after the time L (picture 2), then it can be found based on the Pythagorean theorem:

$$L^2 = x_1^2 + y_1^2 \qquad (2)$$

(1) and (2) from expressions

$$L^2 = (v_1t)^2 + (v_2t)^2 \qquad (3)$$

Paying attention to the condition of the issue,

we rewrite (3):

$$L^2 = (v_1t)^2 + (\frac{v_1}{3}t)^2 = \frac{10(v_1t)^2}{9}$$

This is due to the expression of calculating the numerical value of the sought-after magnitude:

$$v_1 = \frac{3\sqrt{10}L}{10t}$$

Answer:$v_1 = \frac{3\sqrt{10}}{4}$ *м/с.*

3-for instance. If the motor boat passes the distance between the A and B punches in t_1=3 hours, while the sol passes in t_o=12 hours, how does the motor boat pass this distance in t_2 time when turning back?

Known: *t_1=3 coam, t=12 coam;*

Must find: *t_2-?*

Solution: we determine the distance between the A and V punches by s, the speed of the motor boat relative to the water by WK, the flow rate by vo. We will consider the movement in the system that connects the

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Earth. In this case, the equations of motion of the sol and the boat are expressed as follows:

$$s = v_0 t_0, s = (v_k + v_0)t_1 \qquad (1)$$

furthermore

$$v_k = (\frac{t_0}{t_1} - 1) \qquad (2)$$

The speed of the boat relative to the ground in the reverse direction is based on the Relative Strength of the movement: $v_k + v_0$. Therefore, the time of the back of the boat, from the expression of a straight line straight movement:

$$t_2 = \frac{s}{v_k + v_0} \qquad (3)$$

(2) and (3) we solve the expressions together and come to the working formula of the issue:

$$t_2 = \frac{t_0 t_1}{t_0 - 2t_1}$$

Answer: $t_2 = 6$ *coam*.

The section that studies the laws of Motion, together with the reasons for their occurrence, is called Dynamics.

The reason for the change in the mechanical movements of the body is their interaction. This means that as a result of interaction, the speeds of the body change, deform. The magnitude of the interaction, which determines the acceleration or deformation that the body receives as a result of interaction, is called Force. The strength is the vector dimension, denoted by the value of the number, the direction and the point of insertion of the objectmga. 〖If a material point is affected by multiple forces $(\vec{F}_1, \vec{F}_2, \vec{F}_3, \ldots, \vec{F}_n)$, their effect can be replaced by an equally impressive force.

$$F = \vec{F}_1 + \vec{F}_2 + \vec{F}_3 + \ldots + \vec{F}_n$$

The foundations of dynamics are the Three Laws of Newton. Newton's first law: there are such systems, in which the bodies in relation to them stand peacefully or act straight line by line, if the equal of the forces acting on them is equal to zero, then such counting systems are called inersial counting systems. From what is said

$$\vec{F} = \sum_{i=1}^{n} \vec{F}_i = 0, \quad v = const$$

it turns out.

Newton's second law: will be m=const if the mass of the body does not change when the force is acting, the acceleration that the body receives when the force is acting $\vec{a} = \frac{\vec{F}}{m}$. This equation is the basic equation of the material point dynamics. When compiling this equation, it should be borne in mind that the effect of the force placed on the material point is not related to each other, the resulting acceleration of the point at which several forces are in effect is equal to the sum of the geometrical velocities of each force generated separately.

CONCLUSION AND SUGGESTIONS

Science from Algebra ech solving various types of issues kengaytiradi develops the logical thinking ability of the studenttiradi, creative abilitytiradi, further strengthens his knowledge, contributes to deeper mastering

of the lessons, the practical application of the acquired knowledge and skills.

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