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**GEOMETRIC PROBLEM TASKS AS A FACTOR IN THE DEVELOPMENT OF CREATIVE COMPETENCIES**

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**ГЕОМЕТРИК МУАММОЛИ МАСАЛАЛАР ИЖОДИЙ КОМПЕТЕНТЛИКНИ РИВОЖЛАНТИРИШ ОМИЛИ СИФАТИДА**

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**ГЕОМЕТРИЧЕСКИХ ЗАДАЧ КАК ФАКТОР РАЗВИТИЕ ТВОРЧЕСКИХ КОМПЕТЕНЦИЙ**

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**Abstract.** *It is known that today, in addition to technological training, a person has a number of qualities, such as independence, the ability to make important decisions, a creative approach to any work, continuous learning, initiative, cooperation and a sense of professional responsibility. Only an individual orientation of training at all stages makes it possible to form the qualities listed above in future professionals. The article written about using the development of students' creative abilities on the basis of problematic geometric problems.*

**Keywords:** *problematic tasks, creativeness, creative abilities, geometry task, creativity.*

**Introduction.** The professionally coordinated qualities of a person ensure that he acquires knowledge throughout his life. Personality-centered education ensures that a person realizes their professional potential and supports his or her further creative development. Thus, the task of education is not only to provide comprehensive knowledge that will allow a person to become a full citizen, but also to develop independent thinking, which allows him to creatively represent nature around him. It is no secret that science is of great importance in the culture and economy of a modern state. Therefore, the training and education of young scientists with the above qualities is one of the most important issues.

**Materials and methods.** In the process of writing this paper we used number of methods as forecasting, work with documents, abstraction and concretization, comparative analysis, and etc.

**Results and discussion.** In his work, V.P. Dyakonov noted that a student who is not ready to independently master new knowledge cannot develop a readiness for professional activity. It explored how to prepare students for this process in higher education. For this, it is necessary not only to provide the student with a high level of knowledge, skills and abilities, but also to form



a creatively thinking personality, a self-improving specialist who is ready to study independently [1; 255]. The article by D.M. Makhmudova examines the reform of higher education in Russia, the transition to a new education standard, the requirements for graduates. These include general cultural and professional competencies, which are the basis for the success of students in their future endeavors [2, 349]. N.I. Merlin [3; 223-224], emphasizes that the problems of developing students' creative thinking are very relevant today, and she considers it necessary to explore the growing need of society for such youth. Laura Billings discusses the challenges of attracting students to undergraduate research in her article Successful Undergraduate Research: Some Useful Tips for Counselors [5; 798].

Creativity is a creative process that is closely related to thinking, worldview, independent activity, memory, attention, and will of students. The great thinkers of the East extolled creative thinking. Encyclopedic scholar Al-Farabi describes creativity as «... such a great quality that you need to use all the other qualities to master it.» Scientists have different approaches to creativity. While some view creative discovery as a talent associated with logic and intelligence, others see it as something unrelated to logic and intelligence. Academician I.P. Pavlov understands creativity as a physiological process. According to him, the creation is first born in the human imagination, then research is carried out on issues related to it, the work done by others is critically examined, analyzed, observed and logical conclusions are drawn from it. As soon as research yields a certain result, it turns into real creativity. Creative activity is carried out through the inner spiritual experience of students - inspiration, feelings of joy and bitterness, a desire to solve a problem. Creativity allows us to move away from the existing system of knowledge, formed in practice, to approach events from a new point of view than usual, to understand contradictions and find ways to solve them. Creative abilities are not completely inseparable from a person; they are closely related to such actions as knowledge, interest, aspiration and confidence, emotions and will, striving for a set goal, exactingness, hard work. The problem of developing students' creative abilities in the learning process is complex and multifaceted. A distinctive feature of the development of creative abilities is that they, like other abilities, develop during the period of activity [6; 62].

Today, when market relations are developing rapidly, everyone has to change not only their place of work, but also their specialty and profession. In other words, the specialist must have professional variability [17]. The development of manufacturing technologies has led to significant changes in the professional requirements of workers. Along with professional knowledge, skills and abilities, such professional skills as independence have become necessary. Currently, workers are required to have a wide range of professional skills [9; 234]. It is clear that these changes have a strong impact on changes in education and should be aimed at training a professionally active, highly qualified settler [15, 16].

Scientific work is a form of human activity that can only be carried out by those who have creative abilities and achieve results. It is well known that only a very small number of people with creative abilities in the field of art, literature, music can work successfully. It's the same with scientific work, where only people with creative abilities can work successfully. Thus, in order to develop scientific activity, it is necessary to select people with creative abilities, as in art.

It is clear that the choice here is more difficult than in art, because in art life can be defined without special organizational work, for example, the bad work of a writer simply cannot be read, a bad singer or musician cannot be heard, and so on. It is more difficult to assess the creative achievements of a person in the field of science, although people can do it, but only a very small number of scientists with sufficient experience in this field. The selection of employees taking into account their creative abilities is one of the most difficult organizational tasks in the organization of scientific work [7; 25].

The success of scientific work in any field of science is made by people with creative abilities, and such people are extremely rare. Since there are few such people, it is necessary to create conditions that allow them to be used effectively. For this, firstly, it is necessary to create conditions that attract talented people to scientific work, secondly, to organize competitions according to the nature of their abilities, and thirdly, to create special conditions that nurture creatively gifted youth and ensure their full development. In our country, this issue is implemented as follows: as soon as a student graduates from high school (grade 9), such gifted and talented young people are sent to different academic lyceums, depending on the type of ability. However, this is not a complete solution to the problem, the fact is that in all academic lyceums the teaching staff is not ready to develop the creative abilities of young people in the desired direction. Only a very small number of academic lyceums have this opportunity. Therefore, in academic lyceums there is an opportunity to influence the creative education of young people only from the outside. So far, the organization of Olympiads for students of academic lyceums has become one of the best ways to influence. This is a unique competition in solving problems in mathematics and physics, which includes the development of interesting tools for students, astronomical observations, math games, computer programming. Such Olympiads are organized by a group of researchers and specialists from relevant ministries. Such Olympiads not only provide an opportunity to identify creatively gifted young people, but also to awaken their interest in scientific research and scientific problems from an early age. In our country, such Olympiads are widespread and developed, they are held at a very high level [6; 15].

As you know, effective scientific work lacks knowledge and understanding, the most important of which is independent analytical and creative thinking, and these aspects need to be given special attention when teaching young people. Problem solving is of great importance in teaching other specific sciences such as mathematics, mechanics, physics. Problem solving is one of the most effective ways not only to give the student the opportunity to test their knowledge, but also to give the teacher a clear idea of how the student learned the topic. In addition, as mentioned, problem solving also allows young people to identify and develop skills for independent creative and scientific thinking. Mathematics is the science that teaches children from an early age in the natural sciences [11, 12, 13, 14]. It is clear that not all questions enable the student to identify and develop these skills. Therefore, it is necessary to pay special attention to the nature of such issues. Experience has shown that the problems in typical sets of exercises do not always have a character that promotes independent thinking. Usually, solving such problems ends with putting data in a formula and getting the result. Here, the student's independence lies in the correct choice of the formula according to which the data will be placed [8; 215-220].

We will focus on one of the geometric aspects that shape such creativity.  
Example tasks:

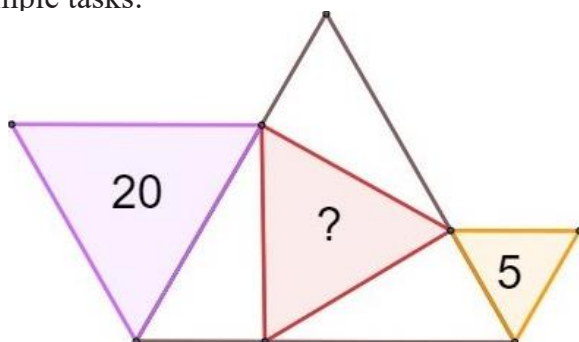


Fig.1. What is the area of the pink triangle? [18]

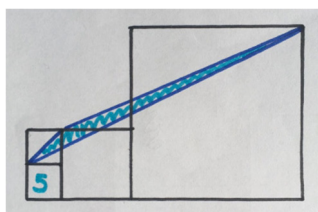


Fig.2. What is the area of the blue triangle? [18]

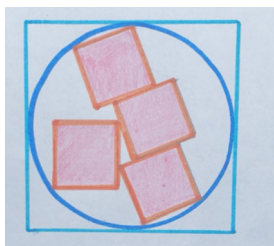


Fig.3. What part of the large square is filled in? [18]

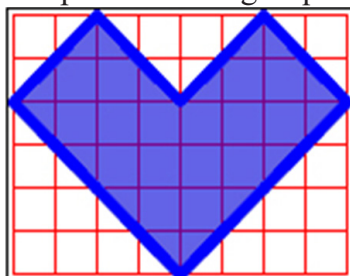


Fig.4. Divide the given figure into 8 equal parts [19].

Conclusion. The above examples show that before creating a particular problem situation, a special preparatory stage for the teacher is needed to identify the student database and declare a new one. This preparation or problem situation is carried out, for example, by answering problem questions or in the form of knowledge that is transmitted by the teacher and assimilated by the students [10]. In this regard, we note the psychological aspect that must be taken into account by the speaker. Students' independent learning activity is activated only when they encounter some intellectual difficulties, but the solution to this difficulty must be within the limits of their intellectual capabilities.

Of course, students' creativity cannot be developed in one or more lessons.

This issue requires constant and systematic special attention. As already mentioned, non-standard questions, specific problematic questions more develop the creative abilities of students. In formulating such questions and problems, teachers should take into account the individual characteristics of each student.

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