**TITLE OF ABSTRACTS**

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A technique for solving geometric construction problems in lyceums is proposed. A theorem has been formulated and proven, the statement of which is widely used in solving problems of construction in stereometry. Conclusions are drawn about the implementation of the proposed methodology in geometry lessons.

*Keywords:* geometry, stereometry, construction problems, parallel lines, plane motion.

*Those who do not know geometry will not enter the doors of the Academy.*

*Plato, IV century BC*

Geometry is one of the ancient, but even today it is one of the most fascinating sciences due to its logic, clarity, and clarity. Geometry, which is studied at school, is called classical. It is more than two thousand years old. In their scientific research, geometry was used not only by mathematicians, but also by representatives of other sciences. Often, even people who are not seriously involved in mathematics try to solve geometric problems.

Geometry lessons are held separately at the school [1]. There are a lot of interesting problems in geometry that allow you to deeply learn not only geometry itself, but also mathematics in general. Among such tasks, construction tasks occupy an important place. As a rule, such problems are formulated very simply, but they need to be solved(a) To the extent permitted by the provisions of this T These tasks encourage students to look for the necessary elements, study the properties of geometric shapes, and learn geometric statements more deeply. Construction tasks remain relevant today.

In classical geometry, construction problems used tools such as compasses and rulers. An important class of problems are construction problems, which are solved with the help of plane movements: transfers, rotations around a point at a given angle, symmetries with respect to a point and a line. Unfortunately, the school offers few construction tasks, especially with the use of movements. In this work, the properties of movements are studied, a number of statements about movements are proved, which are then used in construction problems.

The coordinates of the same point or vector with respect to different coordinate systems are actually different. It is very important to be able to calculate the coordinates of a point or vector with respect to one system from the coordinates of the same point or vector with respect to another.

Proceeding to the solution of this question, we will consider the relative position of the main elements of these coordinate systems to be known. By the basic elements of this Cartesian coordinate system, we mean the origin of this system and the coordinate vectors. Of course, the coordinate axes are also determined by these elements. When it comes to the coordinates of a vector (and not a point), the positions of the origins are, of course, indifferent.

**Theorem.** *When the plane E moves*, two parallel *straight planes E pass into two parallel lines.*

**Proof.**  Let them be straight and parallel, and their images in motion. Suppose that the lines and intersect at the point ** (p. 1). Since the line has become a line, there is a point on the line, which is the prototype of the point. **



Fig1. Geometric illustration of the proof of the theorem

Similarly, on a line there is a point, which is a prototype of the same point. But the distance between the points and is not zero, and the distance between their images, which coincide with the point, is zero. This contradiction came from the assumption that lines and intersects. **

Thus, the theorem is proved.

Stereometry is the branch of geometry in which figures in space are studied [2; 3]. In stereometry, as in planimetry, the properties of geometric shapes are established by proving the corresponding theorems. At the same time, the initial properties are the basic geometric shapes expressed by axioms. The main figures in space are the point, the line, and the plane.

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