Global Scientific Review
A Peer Reviewed, Open Access, International Journal
www.scienticreview.com
Volume 22, December 2023 ISSN (E): 2795-4951

Effective Use Of Software Tools In Geometry

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Annotation. The article is devoted to the topic of effective use of software tools in the teaching of geometry, it contains ideas about the effect of using the GeoGebra program on the improvement of students' mastery, and its advantage in describing geometric shapes

Key words: software tool, education, educational technologies, GeoGebra, theorem, geometric drawing, digital image, interactive environment.

Introduction

The modern era of education informatization determines the need to update and improve the methods of teaching mathematics in general educational institutions. In modern schools, information and communication, remote and cloud technologies are increasingly used not only in computer science classes, but also in learning other subjects. The introduction of information and communication technologies into the educational process deepens and expands the theoretical knowledge base of students, ensures the practical significance of educational results, increases educational and cognitive activity, and fully develops the creative potential of students contributes greatly to the creation of conditions for disclosure. Geometry occupies a special place in school mathematics education, which is necessary for students to acquire knowledge about figures and their properties, to use this knowledge in solving geometric and practical problems, and to develop their spatial imagination. The study of geometry makes a special contribution to the development of logical thinking, the formation of concepts of proof, deductive method, etc. If algebraic material has a lot of ready-made rules and algorithms, problem-solving techniques and methods, geometry has almost no ready-made algorithms. Almost all geometric theorems and problems are non-standard and require an individual approach to their proof and solution.

The effectiveness of teaching geometry depends, first of all, on the students' ability to analyze in detail the specific situations discussed in the problem or theorem. Building the correct drawing and the necessary additional constructions, analyzing how some elements of the drawing change when other parameters change, putting forward hypotheses, confirming or rejecting them, etc.

Modern information and communication technologies can effectively help this, because computer support for studying geometry facilitates the understanding of methods and concepts, provides clarity of the studied material, develops imagination and logical thinking, encourages students to engage in research activities . In our opinion, special attention should be paid to the tools of information communication technologies, such as interactive geometric environments, to solve the above problems

Analysis of literature on the topic

According to T.F.Sergeeva, the interactive geometric environment is a pedagogical software tool that allows you to perform various geometric constructions consisting of basic geometric objects on a computer.

Identify objects and their combinations, as well as relationships between these objects. At the same time, when some objects change, the rest will change in real time. For example, the opposite sides of a parallelogram remain equal and parallel for any movement of its vertices. T.S.Shirikova presents another name for such interactive programs - dynamic geometry systems, by which she means pedagogical software tools that allow performing geometric constructions on the computer in such a way that when one of the geometric objects changes, the others also change. Maintaining mutual relationships, the main advantage of these programs is the ability to create interactive and dynamic geometric drawings and models.

Research methodology

Dynamic geometric drawings are geometric models that contain not only an image, but also an entire algorithm. As a result, when the position of its elements changes, the drawing may change, but the relationships between the elements remain unchanged. Therefore, students are not actually dealing with one geometric figure, but with their combination.

Interactive geometric drawings are drawings that can be changed by the teacher and the student during construction and after construction, and through such a drawing, it is possible to organize interactions between the teacher and students.

Analysis and results

GeoGebra allows you to create dynamic pictures, drawings, models for use in teaching geometry, algebra, physics and other subjects. The main idea of this program is an interactive combination of geometric, algebraic and numerical images. GeoGebra allows you to create various designs from points, rays, vectors, segments and straight lines, allows you to create graphs of various functions, and you can dynamically change images. Change one or more parameters. It also allows you to construct perpendicular and parallel lines, angle bisectors, circles and tangents. In this program, you can measure angles, determine the length of segments, polygons and closed curves. Thus, thanks to the GeoGebra program, it is useful to study the properties of geometric bodies, solve problems visually, prove theorems, conduct research, etc.

Conclusions and suggestions

In conclusion, it can be said that the use of GeoGebra software is useful in proving theorems in geometry. There are several examples of geometry classes focusing primarily on graphing to prove theorems or solve problems. For example, constructing a prism through given points.

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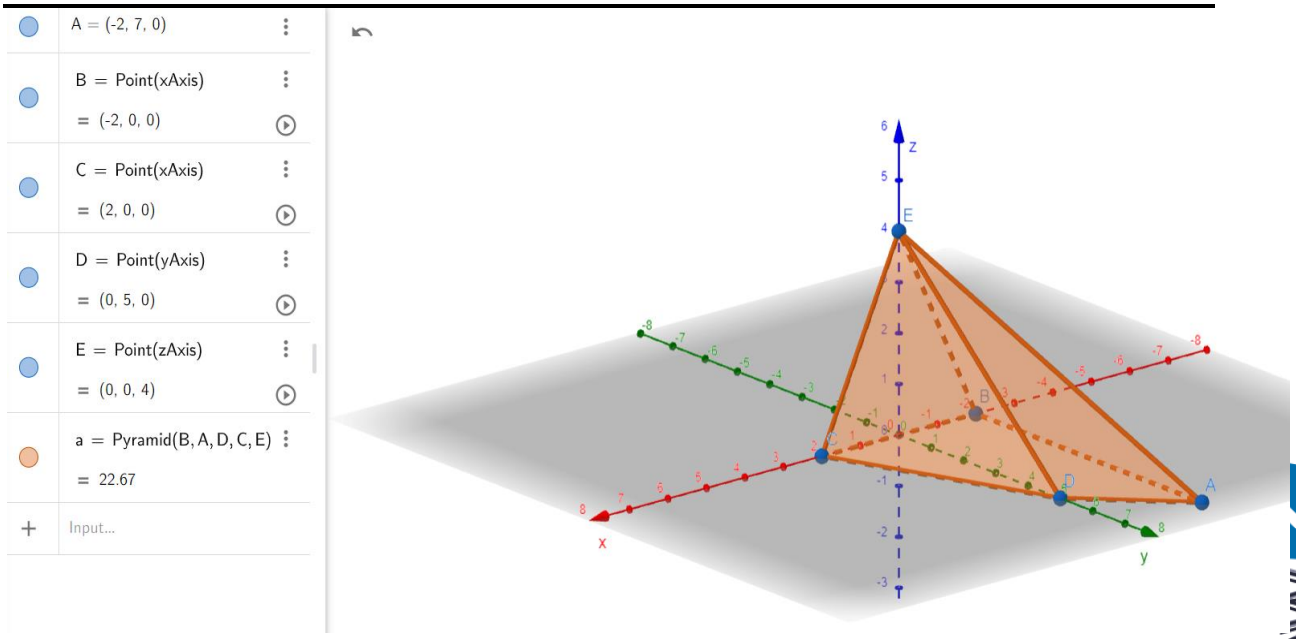

They focus on the importance of creating a correct and accurate drawing on the problem, which helps to form a graphic culture in students and, as a result, increases the efficiency of correct solving of geometry problems. Gaps are manifested in the inability to correctly describe geometric figures, implement additional constructions, inspect a built model or drawing.

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