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Using the GeoGebra program in math lessons

Currently, the most powerful influence on the system of mathematical education is provided by informatization. The use of ICT tools expands the possibilities of computer mathematical modeling, allows you to build information models in order to choose the most optimal method for solving the problem.

In modern conditions, computer mathematical systems are becoming widely used: Derive, MathCad, MatLAB, Maple, Mathematica, Statistica, etc. Possession of tools becomes a mandatory part of the training of modern specialists.

The methodology of teaching a school course in geometry is also undergoing significant changes. This is due to the use of interactive geometric environments. Information technologies are very actively introduced into the educational process.

Modern schoolchildren are very active users of information technologies. In school education, the following technologies are actively used: the introduction of electronic diaries, the acceptance of tasks by e-mail, the creation of auxiliary websites for teachers, the availability of textbooks in electronic form, the use of various software packages for problem solving.

Geometric problems are particularly difficult for students in mathematics. This is due to the insufficient development of the three-dimensional perception of shapes, the lack of basic knowledge about vectors, shapes and their properties, and ignorance of trigonometric functions. Geometry assignments are a good test of your ability to combine different math skills. They require attention and accuracy. Of particular importance in geometric problems is the correct drawing. And the correct drawing cannot be built without good spatial thinking. With the help of modern computer software packages, this problem can be solved.

Modern software radically changes the quality of math lessons. GeoGebra is one of those programs that make lessons more interesting, informative and dynamic.

GeoGebra is a program that provides the ability to create dynamic drawings for use at different levels of learning in geometry, algebra, planimetry, and other related disciplines. The program has the ability to work with functions (plotting, calculating roots, extremes, integrals, etc.).):

Geogebra allows you to create drawings on a computer screen that can be used at various stages of learning educational material, from live posters to research drawings. The interface of the GeoGebra program resembles a blackboard, on which you can draw graphs, create geometric shapes, etc.In the program window, the changes are clearly displayed. If you change the equation, the curve will be rearranged, the scale or its position in space will change, the equation written next to the curve will be automatically adjusted according to the new values.

The GeoGebra program can be used for interactive drawings when solving geometric problems. This program has powerful and functional features that allow you to visually and simply learn math [1].

In the GeoGebra program, you can create various 2D and 3D shapes, interactive videos, which can then be posted on the Internet. Ready-made drawings can be saved as an image and inserted into the document. GeoGebra also allows you to manage geometric constructions.

The use of GeoGebra makes it possible to use time more efficiently, apply differentiated approaches in teaching, introduce an element of play into the lesson, and expand the erudition of students.

Consider the application of the GeoGebra program when studying the topic "Volumes of geometric shapes". The difficulty of tasks on this topic is that students can not imagine a figure in space.

Let's look at a specific example. A regular rectangular pyramid with a side of 3 cm and a height of 5 cm is inscribed in the cone. Find the volume of the pyramid by dividing the value by (fig. 1)

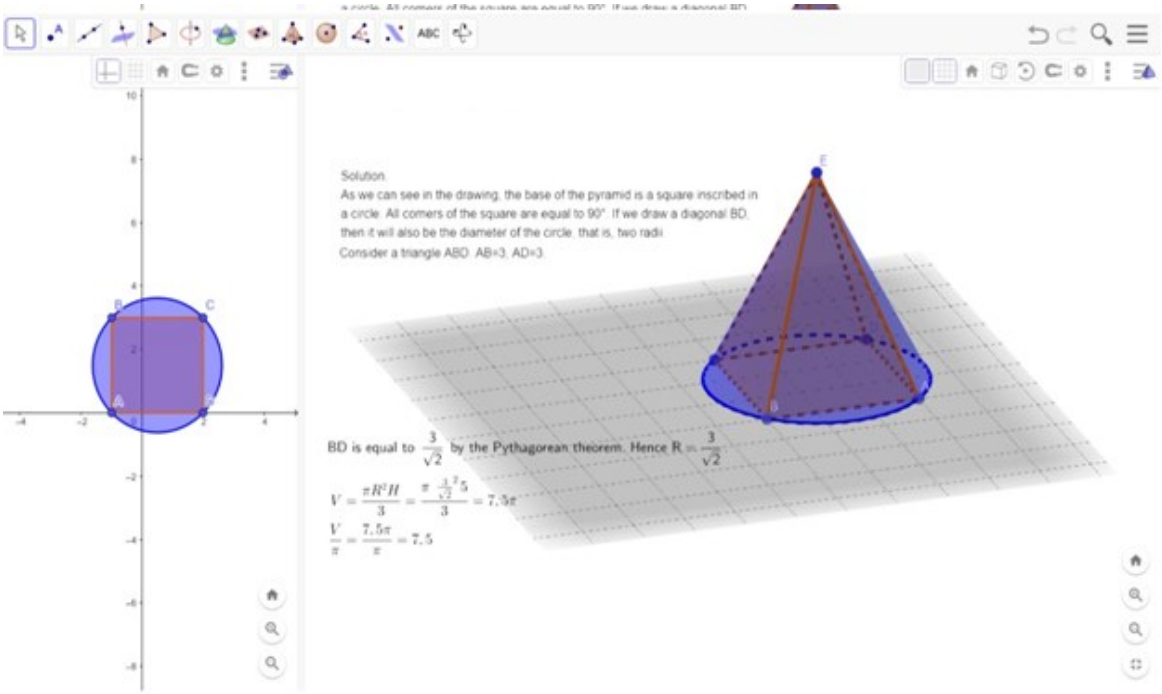

Fig. 1.

GeoGebra is a fairly simple and convenient tool in the arsenal of a modern math teacher, which allows you to bring the learning process to a higher level.

Using the GeoGebra program in the classroom allows you to:

- optimize the learning process, more efficiently using time at different stages of the lesson;

- implement a differentiated approach in training;

- conduct individual work using personal computers;

- reduce the emotional tension in the lesson by introducing an element of play into it,

- expand the horizons of students;

- promotes the development of cognitive activity of students.

References

1. S. V. Larin. "Computer animation in the GeoGebra environment at math lessons", Legion, Rostov-on-Don, 2015.