## GRAPHICAL MODELING OF SEMIREGULAR POLYNOMIALS

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**Annotation**
This article provides information on graphic modeling of polygons and semi-regular polygons.

**Keywords**: polyhedron, graphics, modeling, surface, polygon, body, space, regular

A polygon is a geometric body bounded by flat polygons. These plane polygons are called the sides of the polyhedron, the sides of the polygon are called the edges of the polyhedron, and the vertices of the polygon are called the vertices of the polyhedron. the sides of a polygon form a polygonal surface Usually, objects similar to the depicted objects are excluded from the polygon series. Therefore, when defining a polygon, the polygonal surface (collar) is restricted as follows:

1) let each edge be common to two and only two sides (such sides are called adjacent);
2) it is possible to connect each two sides with a chain of adjacent legs in a row;
3) for each vertex, let the angles belonging to this vertex limit a polygonal angle.

A polygon is called convex if it lies on one side of the plane passing through its arbitrary axis. For any convex polygon, the following Euler's formula is appropriate between the number of its vertices, the number of edges Q and the number of sides Yo

$$U — Q + Yo = 2.$$

In general, Euler's formula is not valid for non-convex polygons. Usually, the quantity $X = U— Q+Yo$ is called the Euler characteristic of a polygon.

If all sides of a convex polygon are regular polygons of the same name and all polygon angles are equal, such a polygon is called a regular polygon. There are five regular polygons in total: tetrahedron, cube, octahedron, dodecahedron, and icosahedron. The dodecahedron and the icosahedron are related, just like the cube and the octahedron, that is, the centers of the sides of the dodecahedron are the vertices of the icosahedron, and vice versa. the fact that there are five different regular polygons in space is an amazing fact, because the number of regular polygons in the plane is infinite. All regular polygons were known in Greece. The 13th book of Euclid's famous "Principles" is devoted to them (see Euclid's "Principles"). these polygons are often called Platonic solids. The great Greek scientist Plato likened four of these bodies to the 4 elements of the universe:

Tetrahedron - fire, cube - earth, icosahedron - water, octahedron - air. the fifth polygon - the dodecahedron is a symbol of the structure of the universe, called the "fifth essence." is called there are 13 types of semi-regular polynomials.

A set of tools representing information is called a data model. Of course, different people interpret the outside world in different ways and have different knowledge about them. That is why different models are used to understand the real world and its phenomena. There is a holistic theory that studies and

researches the formal problems of modeling or modeling. Nowadays, there is computer modeling technology, the purpose of which is to understand the nature that surrounds us, the phenomena that occur in it, events and changes in societyis to speed up the process of understanding by means of modern methods.mastering computer modeling technology requires good knowledge of computer systems (as an intermediary device) and the ability to use modeling technologies in it.

The use of computer programming languages has made a significant turn in the way of mathematical modeling. On high-power Pentium processor computers created at the end of the 20th century, it is possible to create various views of the studied process models (graphs, diagrams, animations, multiplications, etc.) on the computer screen. There are options for moving the model on the screen (for example, a sketch of a picture) at different levels (plane, space)

The model created on the screen can be saved as a file in the computer memory and used several times. In general, the following directions can be distinguished in the methodology of computer modeling:

1. The organization of experiments in the geometric direction is carried out on the coordinate plane. The computer is used as a tool for viewing models and researching the properties of geometric objects and checking mathematical hypotheses.

2. The second direction is related to the modeling of various actions. Various motion problems can be solved by computer models. it leads to a deeper and wider feeling of the nature of the processes taking place, a real evaluation of the obtained results, and an expansion of imagination about the possibilities of computer modeling.

3. The third direction - modeling function graphs on the computer screen - is widely used in professional computer systems. For example, the Logo program allows you to graph functions, solve equations and systems of equations, and obtain their results. the most important thing is that the use of computer modeling technology plays the role of a new stage in the realization of real reality and the realization of the cognitive process

Data models, regardless of their form, must fulfill the following requirements:

1. Simplicity. The data model should have a small number of related structure types.

2. Clarity. The data model should be visual.

3division into parts. The data model should be able to be easily replaced in the data warehouse.

4. Change of place. The data model should be able to be replaced by similar models.

5. Freedom. the data model should not contain only specific fragments.

The above-mentioned requirements cannot ensure the ideality of the created models. Because only some important features of the real object are involved in modeling.

In short, the method of graphic modeling of semi-regular polynomials allows to implement it in its mathematical model without any expensive and often difficult experiments. a significant increase in the capacities of technological devices determines the emergence of a number of issues related to the optimal use of external and internal energy resources. therefore, in the improvement of existing equipment and the design of new ones, the main attention is paid to the development of specific methods of placement of technological and structural parameters

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