



CIRCLE AND CIRCLE

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ABSTRACT

Circle and circle are considered to be one of the most important and widely used concepts in geometry. A circle is a set of points equidistant from a given point in a plane, while a circle is a geometric figure bounded by a circle and its interior. Through these concepts, basic geometric elements such as radius, diameter, center, tangent, arc, and sector are studied. Formulas for calculating the area and length of a circle and circle are widely used not only in theoretical issues, but also in practical fields - physics, engineering, architecture, and technology. This article covers the definition of a circle and circle, their main elements, properties, formulas for calculating the area and length, and their practical significance. The article serves to develop geometric thinking in students.

In geometry, the study of shapes and their properties is important. Among them, the circle and the circle occupy a special place. These concepts have been in the attention of scientists since ancient times and have not lost their importance today. The circle and the circle are often found in everyday life: wheels, clocks, containers, mechanisms and many other objects are based on these shapes. Therefore, an in-depth study of the concepts of the circle and the circle is one of the important tasks of mathematics.

A circle is a set of points located at equal distances from a given point (center) on a plane. This equal distance is called the radius. The main elements that characterize a circle are:

The center is a point that is equidistant from all points on the circle.

The radius is the distance from the center to any point on the circle.

The diameter is a segment passing through the center and connecting two points on the circle, and the diameter is twice the radius.[1]

A circle is a section of a circle that connects any two points on a circle.

The most important property of a circle is that all its points are equidistant from the center.

A circle is a plane segment bounded by a circle and its interior. If a circle only represents a boundary, then a circle includes all points within this boundary. The main elements of a circle include:

Radius

Diameter

Sector - a section of a circle bounded by two radii and the arc between them.

Segment - a section bounded by a circle and its corresponding arc.

The concept of a circle plays an important role in calculating area, comparing shapes, and modeling.

The length of a circle is one of its main measurements and is found using the following formula:

Where:

L is the circumference,

r is the radius,

π (pi) is a mathematical constant approximately equal to 3,14.[4]

If the diameter is known, the formula is written as follows:

Calculating the circumference is widely used in mechanics, physics, and engineering calculations.

The area of a circle is determined using the following formula:

This formula allows you to determine the area of the interior of a circle. The area of a circle is important in many practical problems, including calculating land area, building projects, and preparing technical drawings.

The circle and the circle have the following basic properties:

The diameter is the largest chord.

Circles with equal radii are equal.

All radii of a circle are equal.

The chord length decreases with distance from the center.

These properties serve as the basis for solving geometric proofs and problems.

The circle and the circle are widely used not only in mathematics, but also in other sciences:

In physics - in rotational motion, waves, and mechanical systems.

In engineering - in gears, bearings, and mechanisms.

In architecture - in domes, arches and decorative elements.

In astronomy - in modeling the orbital motion of planets.[5]

Therefore, the study of the concepts of circle and circumference is of interdisciplinary importance.

In conclusion, the circle and circumference are fundamental concepts of geometry, and by studying them, students develop logical and spatial thinking. The formulas for calculating the circumference and area of a circle are an important tool in solving practical problems. These shapes are widely used in everyday life, in many areas of technology and science. Therefore, the topic of the circle and circumference is an integral part of mathematics

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