Understanding the Area of a Circle

Introduction

The area of a circle is the amount of space inside the circle's boundary. It is measured in square units, such as cm^2 or m^2.

Formula for Area of a Circle

The formula for the area A of a circle with radius r is:

$$A = \pi r^2$$

Where:

- A = area of the circle
- π (pi) ≈ 3.1416
- r = radius of the circle (the distance from the centre to the edge)

Example Problem

Find the area of a circle with a radius of 5 cm.

Solution:

$A = \pi r^2$ $A = \pi \times (5)^2$ $A = \pi \times 25$ $A \approx 3.1416 \times 25$ $A \approx 78.54$ cm^2

Practice Questions

1. Calculate the area of a circle with a radius of 7 cm.
2. A circle has a diameter of 10 cm. What is its area?
3. If the area of a circle is 50.24 cm^2, what is its radius (use $\pi = 3.14$)?
4. True or False: The formula for the area of a circle is $A = 2\pi r$.
5. Fill in the blank: The area of a circle depends on the _____ of the circle.

Answer Key

1. $A = \pi r^2 = 3.1416 \times 49 \approx 153.94 \text{ cm}^2$
2. Radius = 5 cm, so $A = 3.1416 \times 25 \approx 78.54 \text{ cm}^2$
3. $A = \pi r^2$, so $r^2 = 50.24/3.14 = 16$, $r = 4$ cm
4. False. The correct formula is $A = \pi r^2$; $2\pi r$ is the formula for the circumference.
5. radius