VOLUME OF SOLID FIGURES

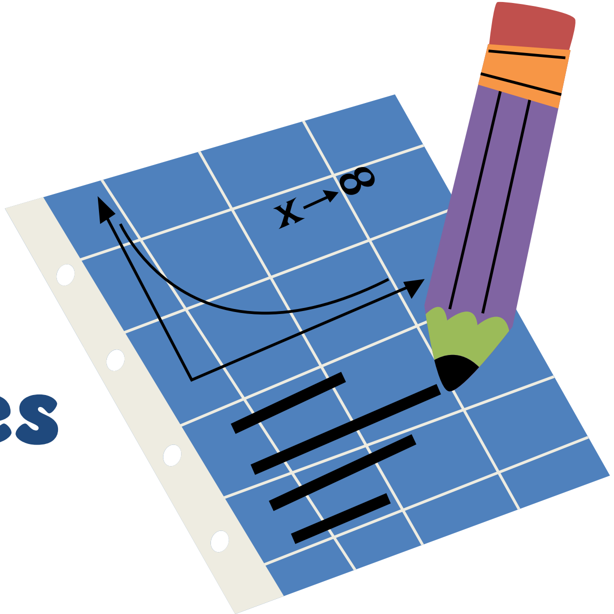
Mata Kuliah Bahasa Inggris untuk Matematika

By:
Chusnul Khotimah Galatea, M.Pd.

Table of contents

01

Introduction to Volume of Solid Figures



Introduction to Volume of Solid Figures

The volume of a solid figure is the measure of how much space an object occupies. It is typically measured by the number of unit cubes it takes to fill up the solid. For example, if you fill a jug with water up to its brim and keep it inside a bucket, then slowly drop a cricket ball into that, some quantity of water will overflow from the jug to the bucket. This quantity of water indicates the volume of the cricket ball dropped.

Defining the Volume of Solid Figures

The volume of a three-dimensional object is generally defined as the capacity of the object, which can hold matter. For instance, the volume of a cubical box indicates the amount of water or any substance that can be contained in it.

The Importance of Concept Volume

Daily Life

Whether you're measuring out ingredients for a recipe, filling up a car's gas tank, or just adding detergent to the washing machine, volume is used often in daily life.

Business

Volume tells traders about a market's activity and liquidity. Higher trade volumes for a specific security mean higher liquidity, better order execution, and a more active market for connecting buyers and sellers.

The Importance of Concept Volume

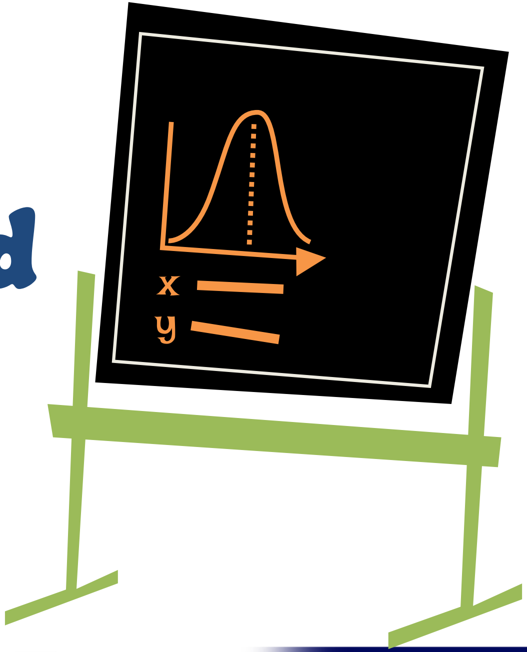
Construction and Gardening

Volume is used to determine the amount of material needed for a project, such as the amount of concrete needed for a foundation or the amount of soil needed for a garden.

Physics and Engineering

Volume is a fundamental concept in these fields, used in calculations involving density, fluid dynamics, and more.

02
The Volume Formula of Solid Figures



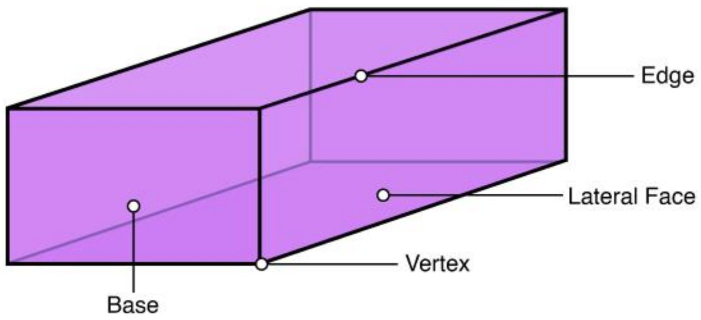
Formula for Volume of a Rectangular Prism

A rectangular prism, also known as a cuboid or simply a box, is a three-dimensional shape with six faces, all of which are rectangles. It has 8 vertices, 12 edges, and 6 faces.

The volume of a rectangular prism is the total space inside it. It can be calculated by multiplying the length, width, and height together. The formula is:

$$V = l \times w \times h$$

Volume = length × width × height

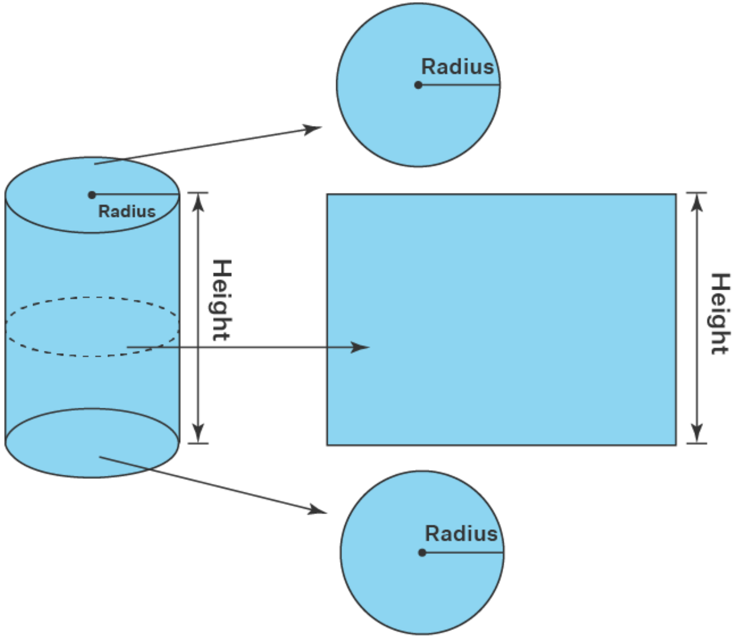


Formula for Volume of a Cylinder

A cylinder is a three-dimensional geometric shape with two parallel circular bases and a curved surface connecting the bases. The bases are always congruent and lie in parallel planes. The volume of a cylinder is the amount of space inside it. It can be calculated by multiplying the area of the base (which is a circle) by the height of the cylinder. The formula is:

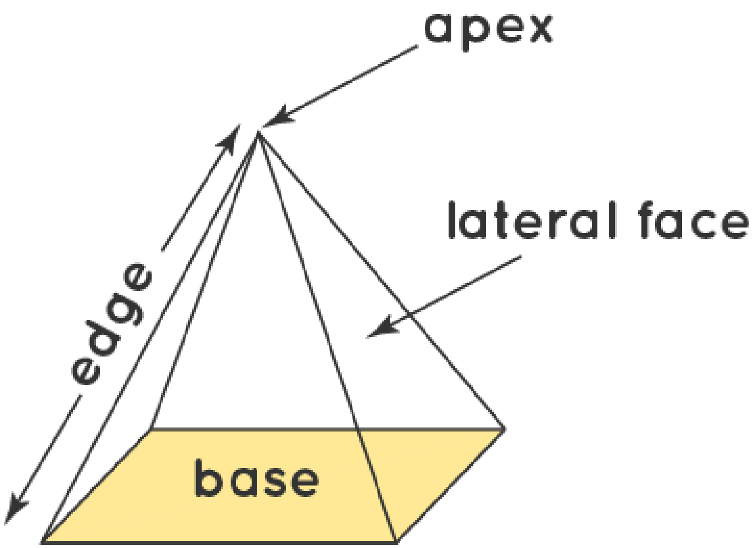
$$V = \pi \times r^2 \times h$$

$$\text{Volume} = \pi \times (\text{radius})^2 \times \text{height}$$



Formula for Volume of a Pyramid

A pyramid is a three-dimensional geometric shape with a polygonal base and triangular faces that converge to a single point called the apex. The base can be any polygon, but common pyramids use a square, rectangle, or triangle.



The volume of a pyramid is the amount of space inside it. It can be calculated by multiplying the area of the base by the height of the pyramid and then dividing by 3. The formula is:

$$V = 1/3 \times B \times H$$

Volume = 1/3 × Area of the Base × Height

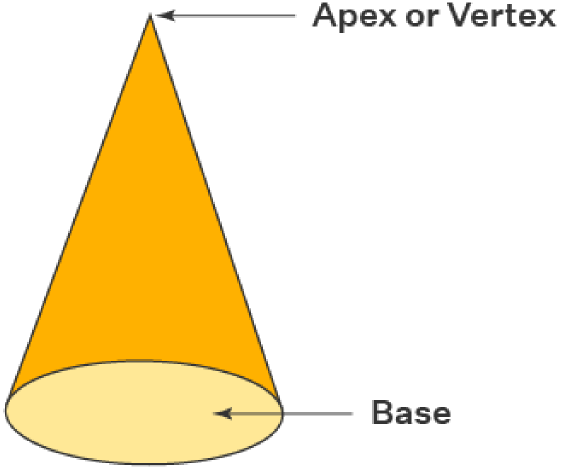
Formula for Volume of a Cone

A cone is a three-dimensional geometric shape with a circular base and a single vertex, also known as the apex. The base and apex are connected by a curved surface.

The volume of a cone is the total space inside it. It can be calculated by multiplying the area of the base (which is a circle) by the height of the cone, and then dividing by 3. The formula is:

$$V = \frac{1}{3} \times r^2 \times h$$

$$\text{Volume} = \frac{1}{3} \times (\text{radius})^2 \times \text{height}$$



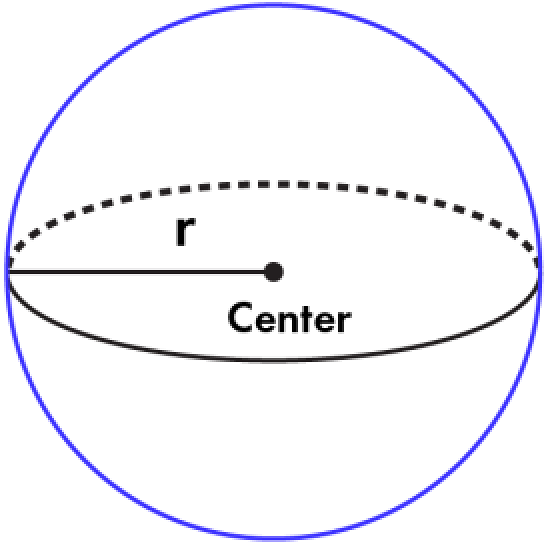
Formula for Volume of a Sphere

A sphere is a three-dimensional geometric shape that is perfectly symmetrical. All points on the surface of a sphere are the same distance from its center.

The volume of a sphere is the total space inside it. It can be calculated by multiplying 4/3 by π (Pi, approximately 3.14159) and the cube of the radius. The formula is:

$$V = \frac{4}{3} \times r^2 \times h$$

$$\text{Volume} = \frac{4}{3} \times (\text{radius})^2 \times \text{height}$$




umjember
KNOWLEDGE, MORALITY, CIVILIZATION
www.unmuhjember.ac.id

Thank You