Unit 05 : measurments

Measurement units are essential for quantifying different quantities. Here are some commonly used measurement units:

Length:

- **Meter (m):** The meter is the base unit of length in the International System of Units (SI). It is roughly equivalent to the length of a standard adult stride.

- **Centimeter (cm):** One hundred centimeters make up one meter. Centimeters are commonly used for measuring smaller lengths.

- **Kilometer (km):** One kilometer equals 1,000 meters. It's often used to measure longer distances, like road or railway lengths.

- **Inch (in):** An inch is a customary unit of length primarily used in the United States.

- **Foot (ft):** A foot is equal to 12 inches and is widely used in the United States.

- **Yard (yd):** A yard is equivalent to 3 feet, or 36 inches, and is also commonly used in the United States.

Area:

- **Square Meter (m²):** This is the standard unit for measuring two-dimensional areas.

- **Square Centimeter (cm²):** Often used for small areas and in scientific applications.

- **Square Foot (ft²):** Commonly used in the United States for measuring areas of real estate and buildings.

- **Acre (ac):** An acre is a unit of area commonly used in agriculture and real estate.

Volume:

- **Liter (L):** The liter is a unit of volume commonly used for measuring liquids and is roughly equivalent to the volume of one cubic decimeter (10 cm x 10 cm x 10 cm).

- **Milliliter (mL):** A milliliter is one-thousandth of a liter and is often used for small liquid volumes.

- **Cubic Meter (m³):** The standard unit for measuring three-dimensional volumes.

- **Cubic Centimeter (cm³):** Often used for small volumes and in scientific applications.

- **Cubic Foot (ft³):** Commonly used for measuring larger volumes, particularly in the United States.

Mass:

- **Gram (g):** The gram is the base unit of mass in the SI system.

- **Kilogram (kg):** One kilogram is equal to 1,000 grams and is widely used in daily life and scientific applications.

- **Pound (lb):** The pound is commonly used in the United States and other countries for measuring mass.
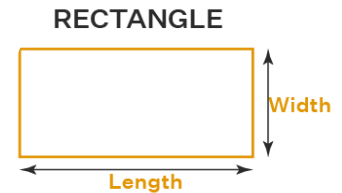
Time:

- **Second (s):** The second is the base unit of time in the SI system.

- **Minute (min):** One minute is equal to 60 seconds.

- **Hour (hr):** An hour consists of 60 minutes, or 3,600 seconds.

- **Day (day):** A day includes 24 hours.

2. Calculating Area

Area is the measurement of two-dimensional space. For different shapes, the following formulas are commonly used:
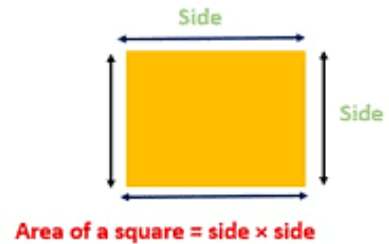
➢ **Rectangle:**

Area = Length x Width

Width

Length

Area of rectangle = Length x Width

➢ **Square:**

Area = Side x Side

Side

Side

Area of a square = side × side

➢ **Triangle:**

Area = (Base x Height) / 2

Height

Base

Area $= \frac{1}{2}$ x base x perpendicular height
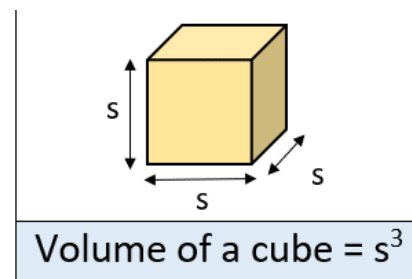
➢ **Circle:**

Area = π x Radius²

radius

diameter

Circumference
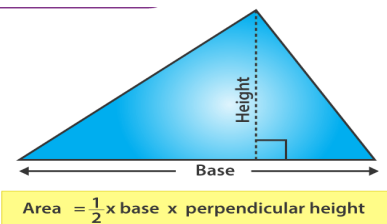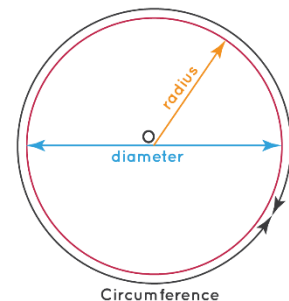
3. **Calculating Volume**

Volume is the measurement of three-dimensional space. Formulas vary depending on shapes:

➢ **Cube:**

Volume = Side x Side x Side
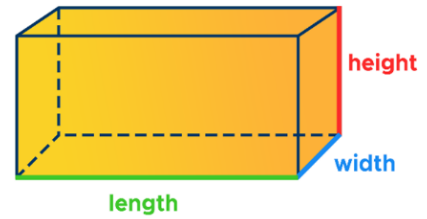
S

S

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Volume of a cube = s^3

➢ **Rectangular Prism:**

Volume = Length x Width x Height

➢ **Cylinder:**

Volume = π x Radius² x Height
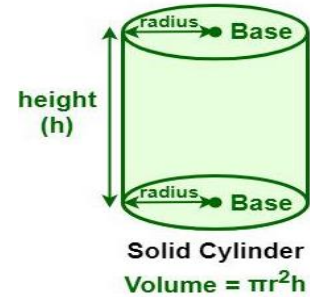
➢ **Cone:**

Volume = (1/3) x π x Radius² x Height
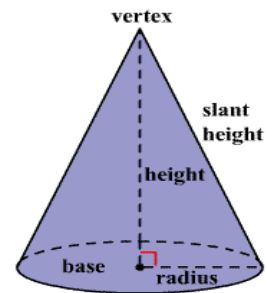
➢ **Sphere:**

Volume = (4/3) x π x Radius³
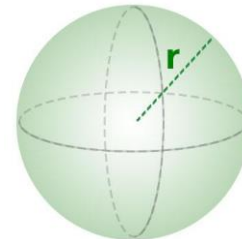
4. **Power**

Power is the amount of work done per unit of time. The unit of power is the watt (W).

- 1 Watt = 1 joule per second (1 W = 1 J/s)

Power is essential in various fields, including electricity, mechanics, and energy.