

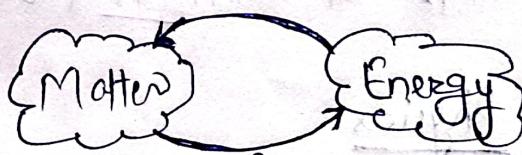
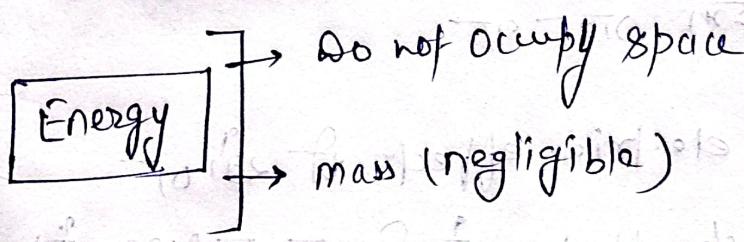
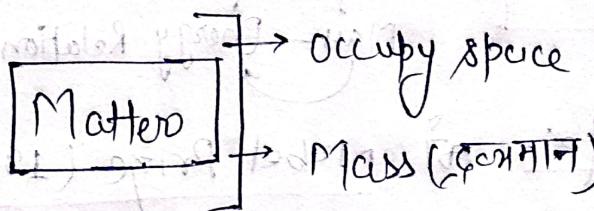
# PHYSICAL WORLD

## PHYSICS

(पौरिकी)

\* Study of Relation of between matter and Energy.

दृष्टि तथा उपर्युक्त के बीच संबंधों का अध्ययन



Matter की Energy में और Energy का matter में convert कर सकते हैं, जैसे वे में एवं पहले Albert Einstein ने बताया था।

$$E = mc^2$$

Where  
E → Energy

m → Mass

c → Speed of light ( $3 \times 10^8 \text{ m/s}$ )

Speed of light

में measure

Ole Roemer

किमी/से

# PHYSICAL MERCY

④ Theory of conservation of mass  
(संगति के नियम)

→ Lavoisier (1789)

→ (Father of Modern  
Chemistry के जन्माता  
&  
the western scientist)

\* Theory of Relativity (संतुलन के नियम)

$$E = mc^2$$

Mass → Energy Relation

→ Albert Einstein के Nobel Prize (1921)  
Photo electric effect के लिए  
लिए इकाई की मिली

→ Photo electric effect के लिए  
Heinrich Hertz के मिली (1887)

Physics

Classical Physics

(परम्परागत भौतिकी)

↓ (1900 के पहले)

Father of classical

Physics → (Sir Isaac Newton)

Modern

Physics (1900  
till)

(21वीं  
शताब्दी)

Father of  
Modern Physics

Albert Einstein

# PHYSICAL WORLD

## \* Classical Physics

✳ Mechanics → knowledge of Motion

(गति के लाई में ज्ञान)

✳ Optics (प्रकाशिकी विज्ञान) → Ray → परावर्तन  
Wave → (Reflection)  
Refraction (प्रवर्तन)

✳ Thermodynamics (उष्मागतिकी) → Thermodynamics laws  
Heat, Temperature, Heat Engine

✳ Electrostatics → charge (आवेद्धता)  
(स्थिर बैचुतिकी) → voltage

✳ fluid dynamics → Viscosity (झालना)  
(फ्लू गतिकी) → Surface Tension (पृष्ठीय ताप)

## \* Modern Physics

✳ Electronics (इलेक्ट्रॉनिक्स) → Computer  
Mobile  
Robots → Sofic

UN of  
Champions  
Award  
16.11.2017

Robot → पहला Robot - 1913 (भार्या)  
Name  
Sofic Robot → द्वितीय भर्ता (भारतिका देश)  
(पहली बार)

VAE (RoboCop)  
मुख्य  
India → द्वंद्व अंदर ने भारत  
में एकीकरण की है

\* Nuclear Physics

नायिकी विज्ञ

भौतिकी

Nuclear fission (नायिकी विभवण)

Atom Bomb

Nuclear fusion (नायिकी संलग्न)

हाइड्रोजन बम (Hydrogen Bomb).

Sun and Stars  
Energy of Nuclear  
fusion की ऊर्जा  
से उत्पन्न है

## Units And Measurements

(इकाई) और (मापन)

quantity (राशि) → मात्रा

पूर्णता  
में इकाई

(कोई सीधी संबंध)

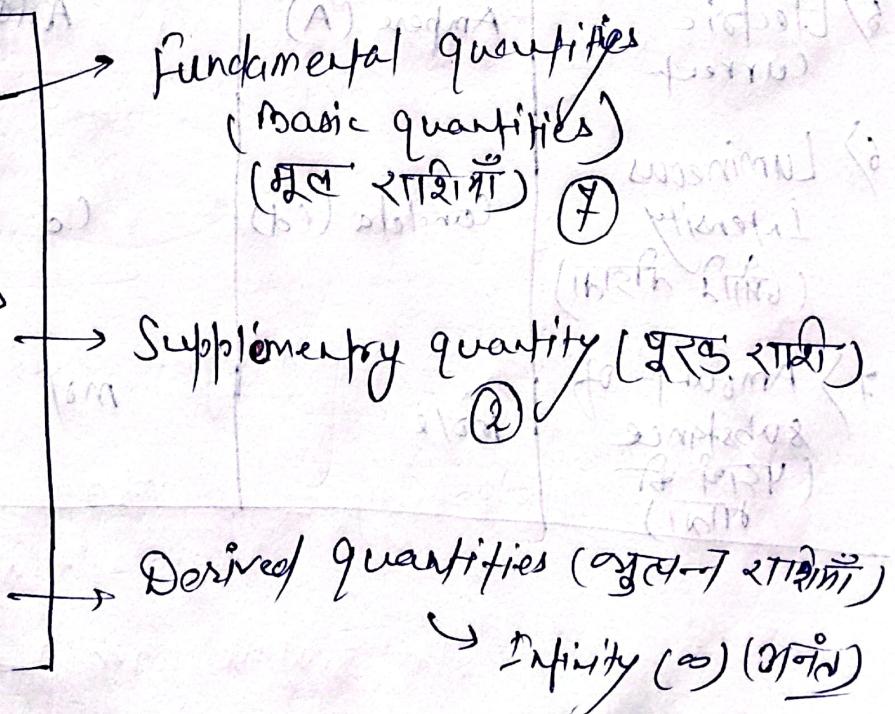
Physical quantities (मौतिक राशियाँ)

These are the quantities which can be measured by an instrument and by means of which we express the laws of Physics.

Example:-

Length, Mass, Time, Tempo,  
distance, speed, velocity,  
acceleration etc.

Physical Quantities



## \* Fundamental quantities

(Dimension → विमा)

Dimensional formula  
(विमाग्रन्थ)

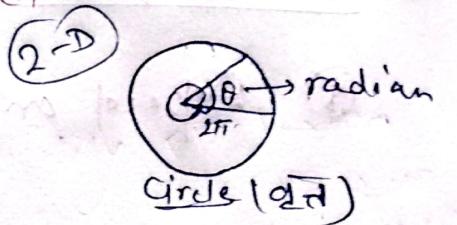
The quantities are that do not depend on  
any other physical quantities for its  
measurements.

Quantities	Units	Dimensional expression
1) Mass (गुणमात्रा)	Kilogram (kg)	M
2) Length (परिमाण)	Meter (m)	L
3) Time (लम्बाई)	second (s)	T
4) Temperature (तापमात्रा)	Kelvin (K/θ)	K
5) Electric current	Ampere (A)	A (or) I
6) Luminous Intensity (ज्योति विकास)	Candela (Cd)	Cd
7) Amount of substance (पदार्थ की मात्रा)	mole	mol

## Supplementary quantity

1 Steradian  $\rightarrow$  1 square Radian  
 full sphere  $\rightarrow$   $4\pi$  square radian  
 अंगुली का गोला

① Plane Angle  $\rightarrow$  radian  
 (समतल कोण)



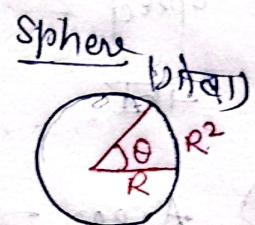
② Solid Angle  $\rightarrow$  Steradian  
 (ठोरा कोण) /  
 (धन कोण)



$$360^\circ \rightarrow 2\pi \text{ radian}$$

$$1^\circ \rightarrow \frac{\frac{2\pi}{360}}{\frac{1}{180}} = \frac{\pi}{180} \text{ radian}$$

$$2\pi \text{ radian} \rightarrow 360^\circ$$



$$\pi \text{ rad} \rightarrow 180^\circ$$

$$\text{Ex:- } 1 \text{ radian} \rightarrow \frac{360}{2\pi} = \frac{180}{\pi} = \frac{180}{\frac{22}{7}} = \frac{180 \times 7}{22} = 57.30^\circ$$

30°

$$30 \times \frac{\pi}{180} = \frac{\pi}{6} \text{ rad.}$$

$$\frac{\pi}{2} \text{ rad.}$$

45°

$$45 \times \frac{\pi}{180} = \frac{\pi}{4} \text{ rad.}$$

$$\frac{\pi}{2} \times \frac{180}{\pi} = 90^\circ$$

90°

$$90 \times \frac{\pi}{180} = \frac{\pi}{2} \text{ rad.}$$

## Degree to Radian

$$\text{Degree} \times \frac{\pi}{180}$$

Ex:- 90

$$90 \times \frac{\pi}{180} = \frac{3\pi}{2} \text{ rad.}$$

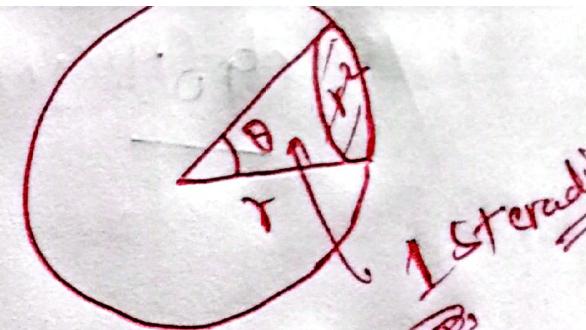
## Radian to Degree

$$\text{radian} \times \frac{180}{\pi}$$

Ex:-

$$\frac{9\pi}{8} \times \frac{180}{\pi} = 270^\circ$$

Steradians = Solid Angle



$$\text{Solid Angle} = \frac{\text{Surface area}}{(\text{radius})^2}$$

$$\text{Total surface area of sphere} = 4\pi r^2$$

$$\text{Solid angle} = \frac{4\pi r^2}{r^2} = 4\pi \text{ Steradian}$$