



KHAN GLOBAL STUDIES

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SCIENCE

LIVE CLASSES



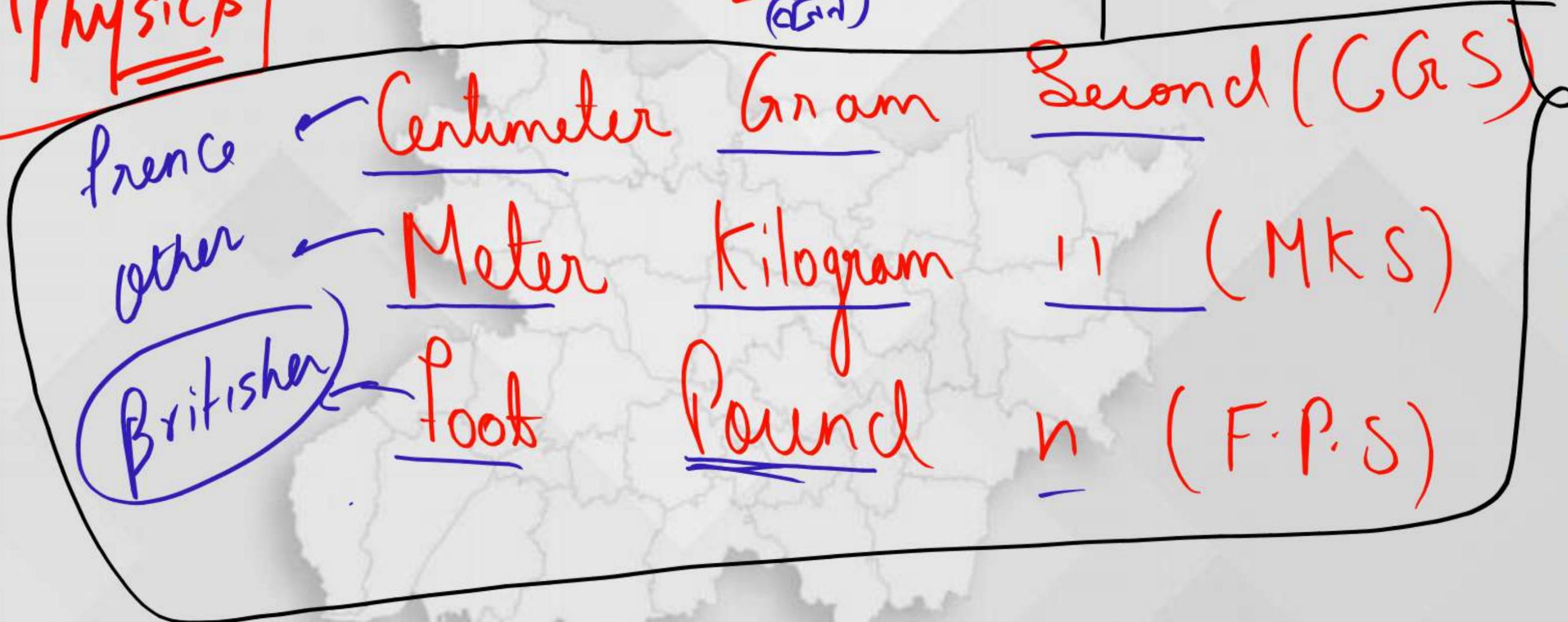
AVINASH SIR

Biology ✓

Physics

Unit (मात्रक)
(विज्ञान)

S.I





मूल मात्रक/Fundamental Unit-

7 Type

I Ampere

Property	Unit	Abbreviation
① Length	meter	<u>m</u>
② Mass	<u>kilogram</u>	<u>kg</u>
③ Time	<u>seconds</u>	s
④ Amount	<u>mole</u>	<u>mol</u>
⑤ Temperature	<u>kelvin</u>	<u>K</u>
⑥ electric current	<u>ampere</u>	amp
⑦ luminous intensity	<u>candella</u>	cd

भौतिक राशि/प्रतीक	SI मात्रक	प्रतीक
समय (t) ①	सेकण्ड	s
द्रव्यमान (m) ②	किलोग्राम	kg
लम्बाई (l) ③	मीटर	<u>m</u>
विद्युत धारा (I) ④	ऐम्पियर	A
ज्योति तीव्रता (I_v) ⑤	कैण्डेला	Cd
ऊष्मागतिक ताप (T) ⑥	केल्विन	K
पदार्थ की मात्रा (n) ⑦	मोल	mol

चुनिताव (Derived)

force (SI) \Rightarrow Newton (N)
(S.I)

CGS = dyne

$1N = 10^5 \text{ dyne}$

Work (Unit)
Joule

$1J = 10^7$ erg
 \downarrow
C.G.S

1km = 1000m

1mile = 1.60934km

1NM = 1.852km

(Nautical Mile)

1Quintal = 100kg

1Metric ton = 1000kg.

1acre = 43560 sq.feet = 4046.94sq m.

1hectare = 2.5 acre.

1 gallon = 3.785 l

1 Barrel = 159 L

Punjab = 1st her = ①
wheat

1600 →



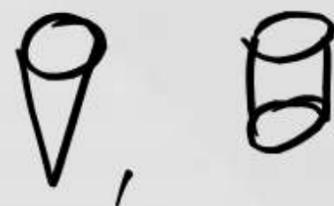
1 मॉन (Mann) = 40kg

1 मॉन = 5kg (100)
Pasani =



(युक्त मात्रिका)

Supplementary Unit

3D  Solid Angle = Steradian

2D  Plane = radian



*ASTRONOMICAL UNIT/खगोलीय इकाई

-Distance between sun to earth/ सूर्य से पृथ्वी के बीच की दूरी.
1 A.U- 1.495×10^{11} meter.



*Light Year/प्रकाश वर्ष

-Distance travelled by light in vacuum in one year
प्रकाश द्वारा निर्वात में एक वर्ष में तय की गयी दूरी
1 Light Year- 9.46×10^{15} meter.

$$1 \text{ A.U.} = 1.495 \times 10^{11} \text{ meter}$$

*Par sec(Parallax second)-1 par sec- 3.08×10^{16} meters.

$$1 \text{ Light Year} = 9.46 \times 10^{15} \text{ meter}$$

$$1 \text{ Par Sec} = 3.08 \times 10^{16} \text{ m}$$

DIMENSIONAL FORMULAE OF PHYSICAL QUANTITIES

S.No	Physical quantity	Relationship with other physical quantities	Dimensions	Dimensional formula
1.	Area ✓✓	Length × breadth	[L ²]	[M ⁰ L ² T ⁰]
2.	Volume ✓✓	Length × breadth × height	[L ³]	[M ⁰ L ³ T ⁰]
3.	Mass density ✓	Mass/volume	[M]/[L ³] or [ML ⁻³]	[ML ⁻³ T ⁰]
4.	Frequency	1/time period	1/[T]	[M ⁰ L ⁰ T ⁻¹]
5.	Velocity, speed ✓✓	Displacement/time	[L]/[T]	[M ⁰ LT ⁻¹]
6.	Acceleration ✓✓	Velocity /time	[LT ⁻¹]/[T]	[M ⁰ LT ⁻²]
7.	Force ✓✓	Mass × acceleration	[M][LT ⁻²]	[MLT ⁻²]
8.	Impulse ✓✓	Force × time	[MLT ⁻²][T]	[MLT ⁻¹]
9.	Work, Energy ✓✓	Force × distance	[MLT ⁻²][L]	[ML ² T ⁻²]
10.	Power ✓✓	Work/time	[ML ² T ⁻²]/[T]	[ML ² T ⁻³]
11.	Momentum ✓✓	Mass × velocity	[M][LT ⁻¹]	[MLT ⁻¹]
12.	Pressure, stress ✓✓	Force/area	[MLT ⁻²]/[L ²]	[ML ⁻¹ T ⁻²]
13.	Strain	$\frac{\text{Change in dimension}}{\text{Original dimension}}$	[L]/[L] or [L ¹]/[L ¹]	[M ⁰ L ⁰ T ⁰]
14.	Modulus of elasticity	Stress/strain	$\frac{[ML^{-1}T^{-2}]}{[M^0L^0T^0]}$	[ML ⁻¹ T ⁻²]
15.	Surface tension	Force/length	[MLT ⁻²]/[L]	[ML ⁰ T ⁻²]
16.	Surface energy	Energy/area	[ML ² T ⁻²]/[L ²]	[ML ⁰ T ⁻²]
17.	Velocity gradient	Velocity/distance	[LT ⁻¹]/[L]	[M ⁰ L ⁰ T ⁻¹]
18.	Pressure gradient	Pressure/distance	[ML ⁻¹ T ⁻²]/[L]	[ML ⁻² T ⁻²]
19.	Pressure energy	Pressure × volume	[ML ⁻¹ T ⁻²][L ³]	[ML ² T ⁻²]
20.	Coefficient of viscosity	Force/area × velocity gradient	$\frac{[MLT^{-2}]}{[L^2][LT^{-1}/L]}$	[ML ⁻¹ T ⁻¹]
21.	Angle, Angular displacement	Arc/radius	[L]/[L]	[M ⁰ L ⁰ T ⁰]
22.	Trigonometric ratio (sinθ, cosθ, tanθ, etc.)	Length/length	[L]/[L]	[M ⁰ L ⁰ T ⁰]
23.	Angular velocity	Angle/time	[L ⁰]/[T]	[M ⁰ L ⁰ T ⁻¹]



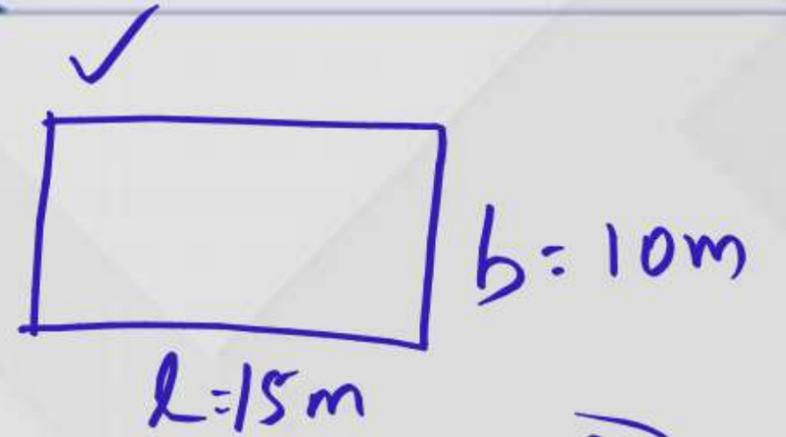
Dimensional Unit

M
↓
mass

L
↓
Length

T
↓
Time

$$M^0 L^2 T^0$$



$$L \times b = 150m^2$$



$$a = 5^2 = 25m^2$$