

Classical Physics

pre-Quantum Mechanics
(1926)

Assumes: world is a
"clockwork"

describable by laws

laws are mathematical

Is universe like this?

NO.

Effective'

Physics' Description of World

math as a language

everyday words:

precise defⁿs

Operational Defⁿ (pg 5-6)

Concepts defined by
procedure or operation

Ex! IQ

We will develop operational
defⁿ of energy.

This Quarter:

Today Chapt. 1 text

§1.1 Motion Diagrams

Visualisation technique

Text: "STOP TO THINK"

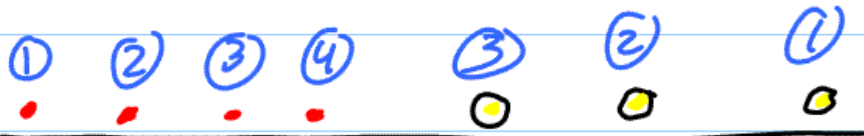
1.1

§1.2 Models

Cow: collision with truck
particle

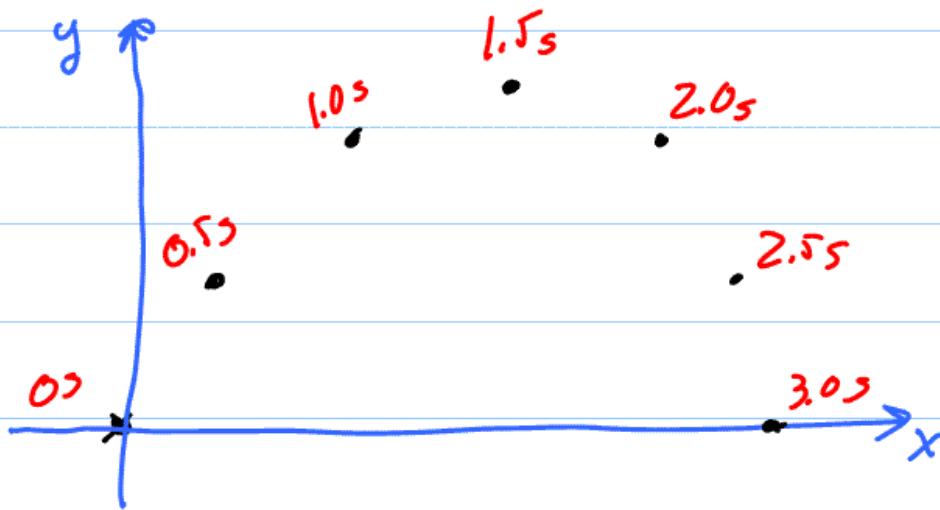
leather production
proportional to \mathcal{L} surface area
sphere

STT 1.1 model cars as
particles



§ 1.3 - Position vs Time

Projectile



Coordinate System!

In principle arbitrary
In practice, be clever

Time $t = 0$

same remarks

scalar: number.

e.g. mass, temp

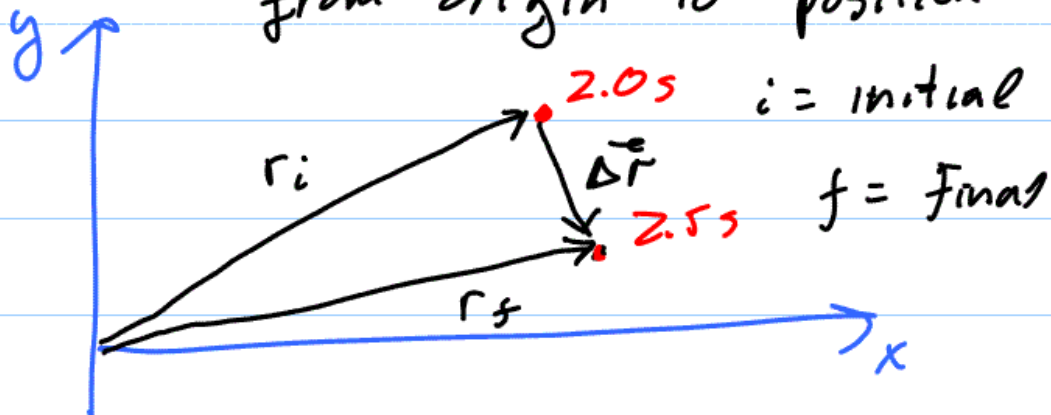
vector: magnitude & direction

e.g. Barrie is 90 km
North of TO

notation: \vec{a} \vec{A}

position vector \vec{r}

from origin to position



displacement vector $\vec{\Delta r}$

$\Delta =$ "delta" = change

$\vec{\Delta r}$ tip of \vec{r}_i to
tip of \vec{r}_f

$$\vec{r}_i + \vec{\Delta r} = \vec{r}_f$$

$$\vec{\Delta r} = \vec{r}_f - \vec{r}_i$$

§1.7 - Velocity

distance: travelled

displacement: defined already

$$\text{speed} \equiv \frac{\text{distance}}{\text{time}}$$

$$\text{velocity } \vec{v} = \frac{\vec{\Delta r}}{\Delta t}$$