

PHY100S - The Magic of Physics - Class 2

"I do not feel obliged to believe that the same god who has endowed us with sense, reason and intellect has intended us to forgo their use."

-- Galileo

If you missed the first class: pick up a set of "voting cards" from the front.

www.upscale.utoronto.ca/PHY100S.html

§3.1 continued

Aristotle: horizontal motions
needs pushes or pulls
to maintain them

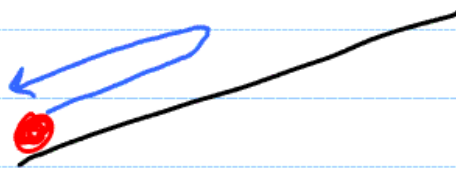
"Violent Motion"

Celestial Bodies! 5th element "Ether"

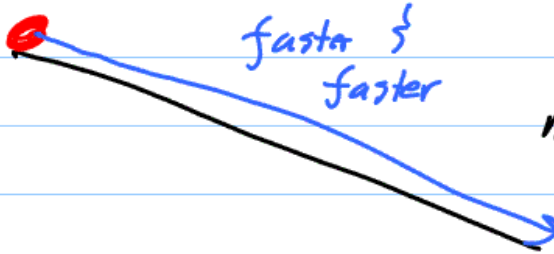
§3.2 - "How do we know?"

Galileo did 1st experiments

Inclined plane.



steeper plane,
less far up
ball goes



faster &
faster

steeper plane,
more speedup
of ball

⇒ horizontal plane - goes on
forever.

Really?

If we could eliminate
friction, yes.

Scientific Method:

- ① Quantitative Expts
- ② Idealizations.
- ③ Limits the scope of the inquiry.

§3.3

Descartes

Turn off gravity

LAW OF
INERTIA

A body subject to no external influences will

- ① stay at rest if initially at rest
- ② move in straight line with constant speed if initially moving

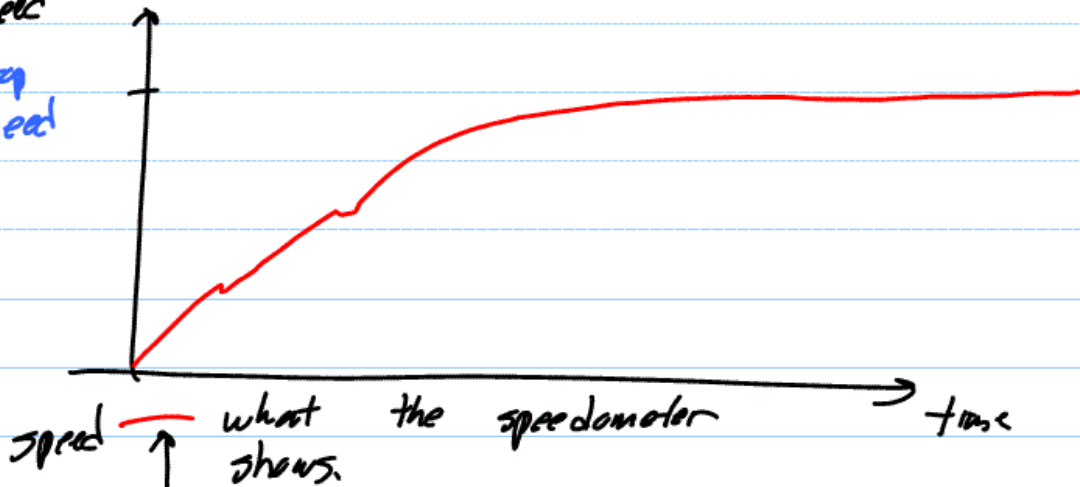
§34 - 3.5

Kinematics - describe motion

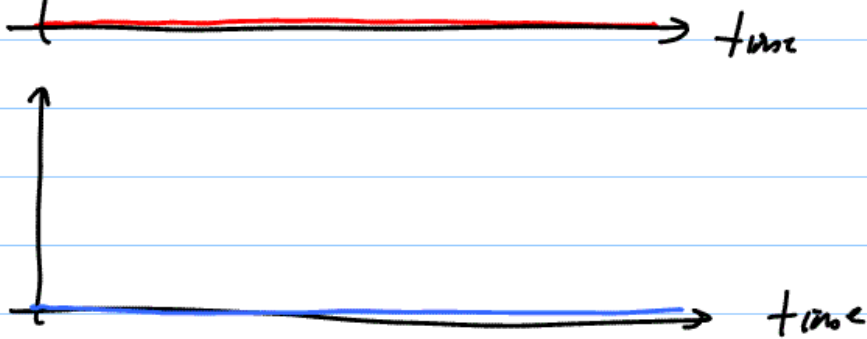
Hobson with words

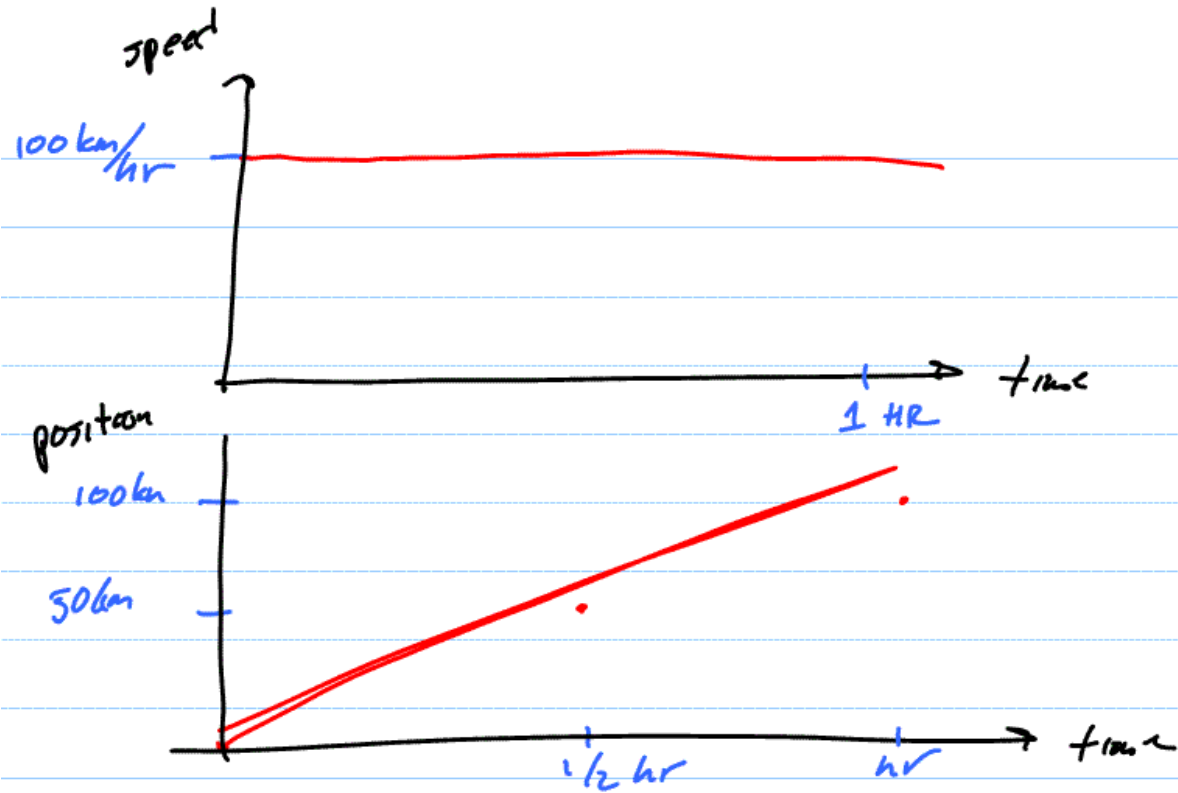
Me with graphs

speed
to
speed



position



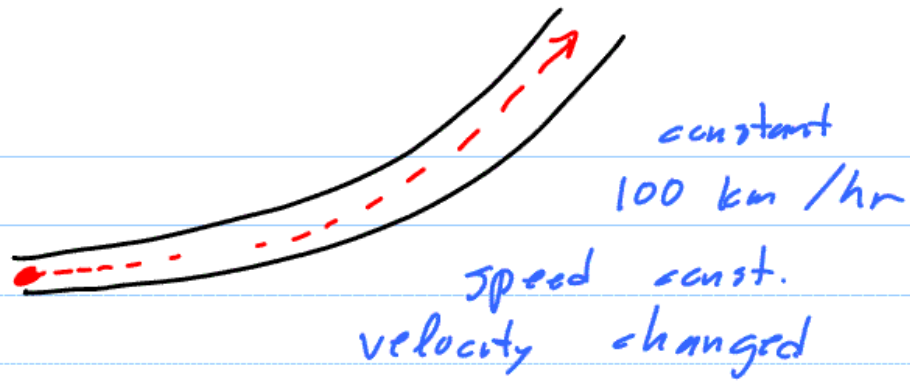


Language! everyday words \Rightarrow
more precise meanings

Car! 100 km/hr East

100 km/hr North

speed \equiv how fast
 velocity \equiv how fast & in what direction



Acceleration \equiv rate of change
of velocity.