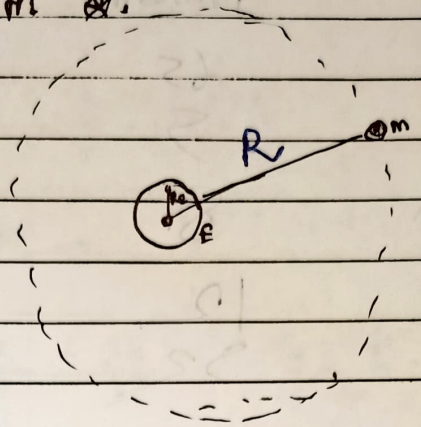
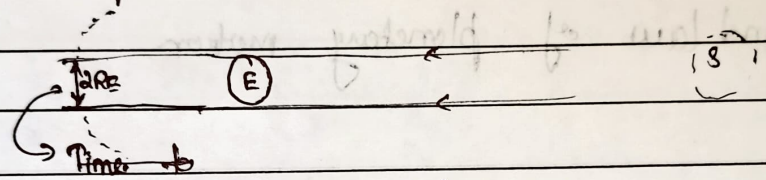
* Ratio of distance between earth and moon and the radius of earth ?



Lunar Eclipse



Duration of LEclipse ($t_{transit}$)

T = Time taken by moon to in one revolution of earth ≈ 30 day

$t_{transit}$ = Duration of lunar eclipse ≈ 2Re

~~Distance 2πR 30 day~~

~~Re covered transit time~~

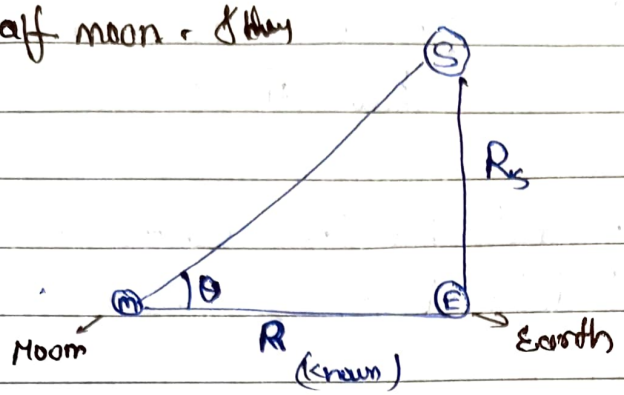
2πR covered in 30 day

& 2Re covered in $t_{transit}$ time ≈ 3hrs

$$\frac{R}{Re} = \frac{T}{t_{transit}} \simeq 60$$

✡ Distance between the Earth & Sun

Half moon - ☽



$$\theta = \frac{R_s}{R}$$

✡ Equivalence Principle

$$\frac{d\vec{P}}{dt} = \vec{F}_{applied}$$

$$\frac{m\,d\vec{v}}{dt} = k\,\vec{f}(\vec{r}, \vec{v}, t)$$

inertia — charge

✡ Free fall

→ All freely falling objects at rest with respect to each other

→ They have Uniform Acceleration irrespective of their masses

a is independent of the body
↳ g.

$$m\vec{a} = \vec{F}_{applied}$$

$$\vec{a} = \frac{\vec{F}_{ar}}{m}$$

m → change of the body (gravitational mass)

The force exerted by the earth on the bodies is independent of their mass

$$\boxed{m\vec{a} = m\vec{f}}$$ → Universality of Earth pull on the bodies

inertia is counter balance change