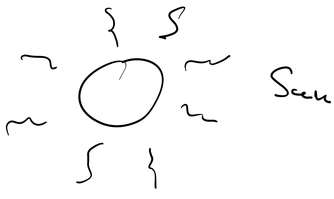
One of the first arguments towards the electromagnetic nature of light was the coincidence between speed of electromagnetic wave calculated by Maxwell and speed of light.

Combination of constants



Let's imagine we forgot all the laws of gravitation, but we can measure mass of the Sun and distance from Earth to the Sun.

$M = 2 \cdot 10^{30}$ kg
$R = 1.5 \cdot 10^{11}$ m

→ How we can know the duration of year?

Year is seconds, but we need to build it from M and R

$g = 6.7 \cdot 10^{11}$, but what are the units?

$$\frac{M_1 M_2}{R^2} \cdot g = F, \text{ but } F = mV^2$$

$$\Downarrow$$

$$[g] = \frac{kg \cdot m^2}{s^2} \cdot \frac{m}{kg^2} = \frac{m^3}{kg \cdot s^2}$$

$$T = \sqrt{\frac{R^3}{M g}}$$

1) Roemer (Jupiter satellite)
2) Fizeau
3) Kransh - Weber $\frac{1}{\sqrt{\varepsilon_0 \mu_0}}$
4) Maxwell noticed $c \approx \frac{1}{\sqrt{\varepsilon_0 \mu_0}}$
5) Hertz
6) Michelson

speed of light

another experiments.