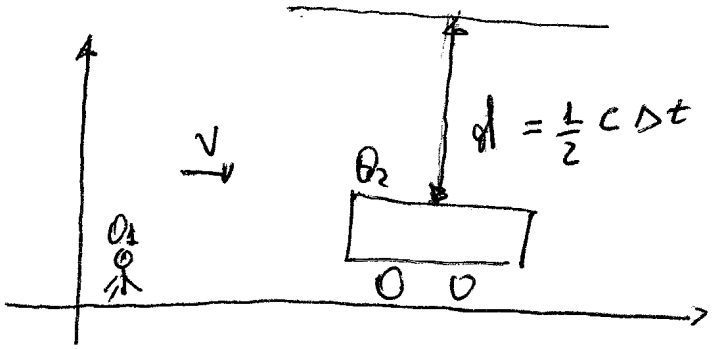
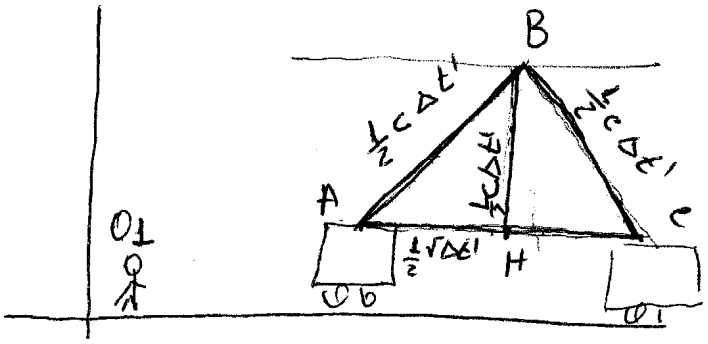
MISURA DI UN INTERVALLO DI TEMPO



$$\Delta t = \frac{2d}{c}$$

$O_2 \Rightarrow \Delta t = \frac{2d}{c}$



O_1:

$s = AB + B$

$\Delta t' = ?$

consideriamo il $\triangle$ rett. AHB:

$$AB^2 = AH^2 + BH^2 \quad [1]$$

$$AB = \frac{1}{2} c \Delta t'$$

$$AH = \frac{1}{2} v \Delta t'$$

$$BH = \frac{1}{2} c \Delta t$$

sostituendo nella [1]

$$\frac{1}{4} c^2 \Delta t'^2 = \frac{1}{4} v^2 \Delta t'^2 + \frac{1}{4} c^2 \Delta t^2$$

$$c^2 \Delta t'^2 - v^2 \Delta t'^2 = c^2 \Delta t^2$$

$$\left(c^2 - v^2\right) \Delta t'^2 = c^2 \Delta t^2$$

$$\Delta t'^2 = \frac{c^2 \Delta t^2}{c^2 - v^2} \qquad \text{div. per } c^2$$

$$\Delta t'^2 = \frac{\Delta t^2}{1 - \frac{v^2}{c^2}}$$

$$\boxed{\Delta t' = \frac{\Delta t}{\sqrt{1 - \left(\frac{v}{c}\right)^2}}}$$

Se $v \ll c$

$$\Delta t' = \Delta t$$

Nella vita di ogni giorno poiché $v \ll c$ non ci accorgiamo della differenza tra $\Delta t'$ e Δt.