



Twin Paradox / Writing letters from underway (See also Quiz)

If clock in S' @ $x'=y'=z'=0$
says $ct'=1m$

→ simultaneous w/ S
saying $ct = \gamma \cdot 1m$

TIME DILATION

μ muon $\tau \approx 2.2 \mu s$

Length Contraction

by $\frac{1}{\gamma}$

Inertial Systems

S : ct, x, y, z

S' : $\Theta' = \Theta$

S' moves in $+x$ direction with
velocity v

$x' \parallel x, y' \parallel y, z' \parallel z$

$$\gamma = \frac{1}{\sqrt{1 - v^2/c^2}}$$
$$ct_e = \gamma \left(ct'_e + \frac{v}{c} x'_e \right)$$

$$x_e = \gamma \left(\frac{v}{c} ct'_e + x'_e \right)$$