

Relativity Transformation Factor

$$\gamma = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}$$

v = velocity of motion

c = the velocity of light

When $v \ll c$, $\gamma \rightarrow 1$ (Newtonian)

When $v \rightarrow c$, $\gamma \rightarrow \infty$ (Relativistic)

Lorentz-Fitzgerald Contraction

$$L = L_0 \sqrt{1 - \frac{v^2}{c^2}} = \frac{L_0}{\gamma}$$

$$T = \frac{T_0}{\sqrt{1 - \frac{v^2}{c^2}}} = T_0 \gamma$$