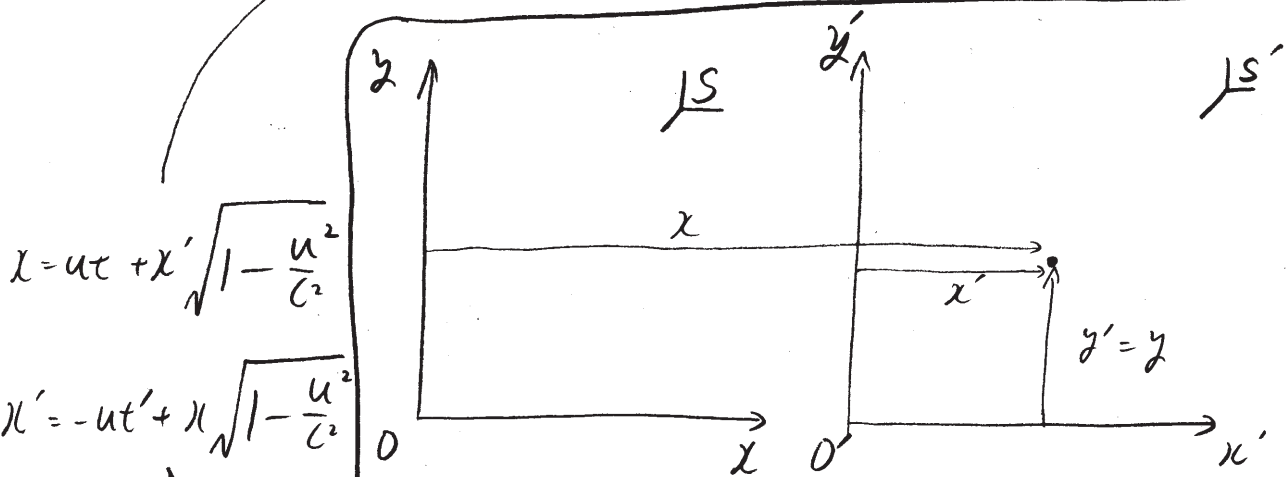


University Physics の流れ (Chapter 39 Relativity)

教科書の順 ↓

$$\text{time dilation } \Delta t = \frac{\Delta t_0}{\sqrt{1 - u^2/c^2}}$$

$$\text{length contraction } l = l_0 \sqrt{1 - \frac{u^2}{c^2}}$$



(S' は x 軸方向に速度 u で動いている。)

$$x' = \frac{x - ut}{\sqrt{1 - u^2/c^2}} = \gamma(x - ut)$$

$$y' = y$$

$$z' = z$$

$$t' = \frac{t - ux/c^2}{\sqrt{1 - u^2/c^2}} = \gamma(t - ux/c^2)$$

at c , $\gamma \equiv \frac{1}{\sqrt{1 - u^2/c^2}}$ Lorentz Transformations

$$dx' = \gamma(dx - u dt)$$

$$dt' = \gamma(dt - u dx/c^2)$$

$$v' = \frac{v - u}{1 - uv/c^2}$$

$$v = \frac{v' + u}{1 + uv'/c^2}$$

Lorentz velocity Transformations