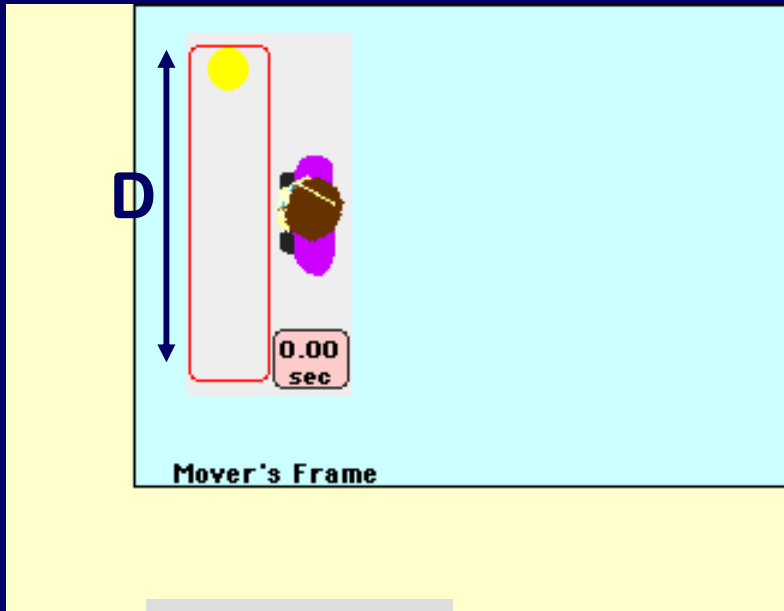


Time Dilation

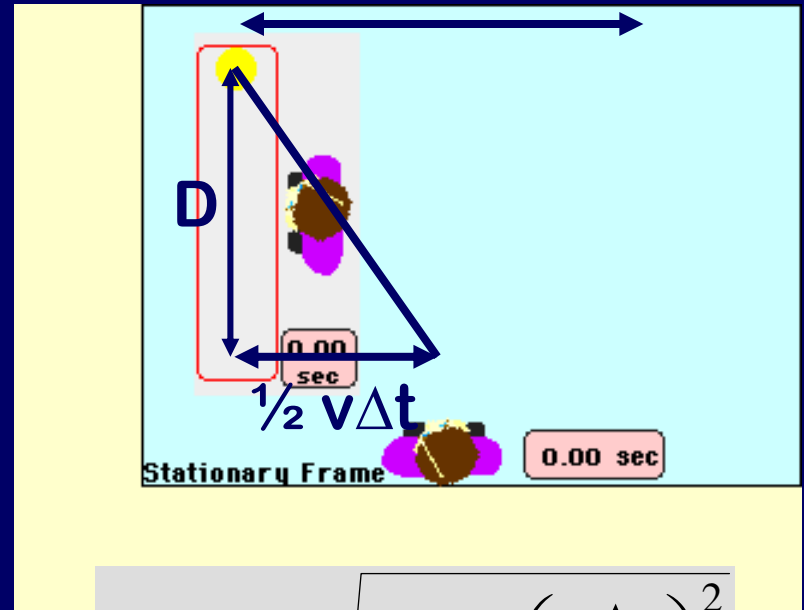


$$c\Delta t_0 = 2D$$

$$\Delta t_0 = \frac{2D}{c}$$

t_0 is proper time
Because it is rest
frame of event

$$\Delta t = \frac{\Delta t_0}{\sqrt{1 - \frac{v^2}{c^2}}}$$



$$c\Delta t = 2\sqrt{D^2 + \left(\frac{v\Delta t}{2}\right)^2}$$

$$\Delta t = \frac{2D}{c} \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}$$