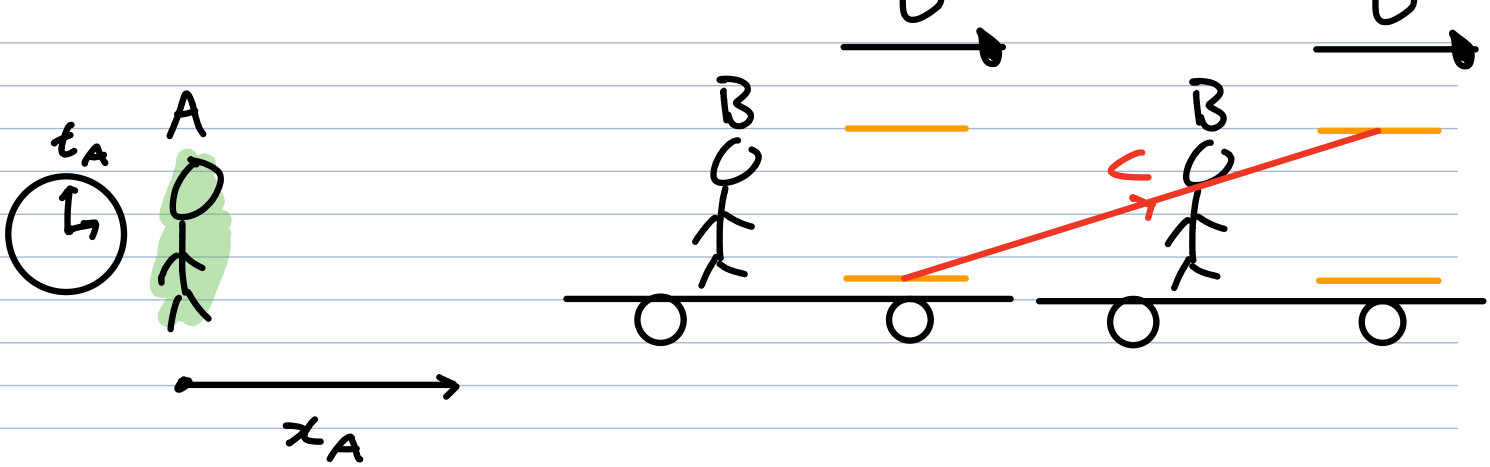
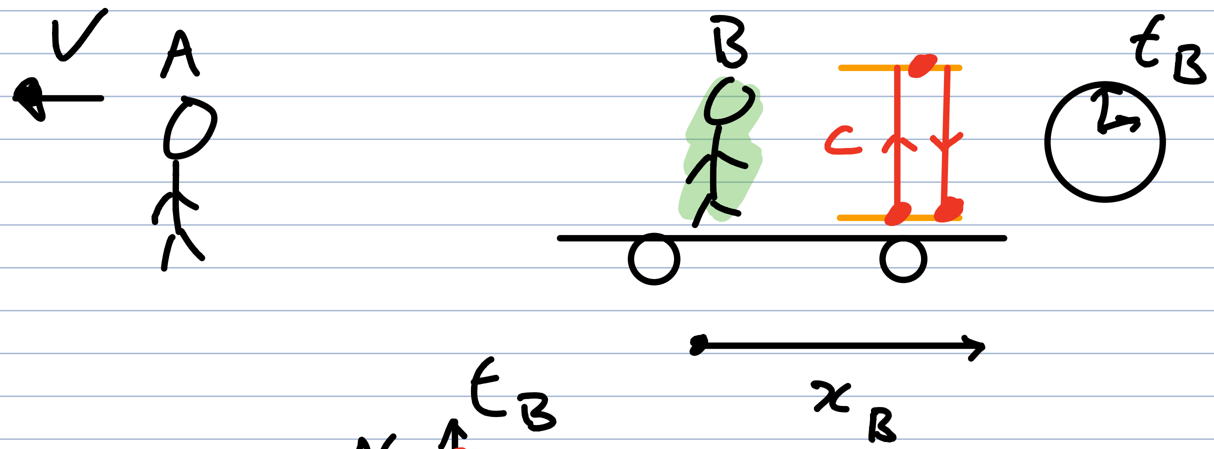
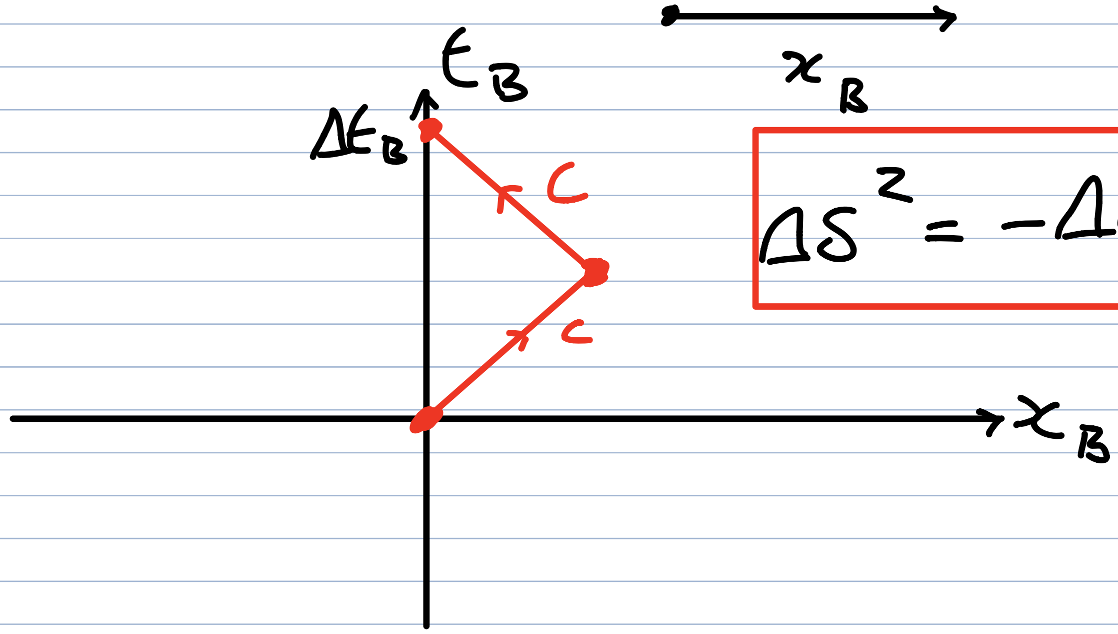
A

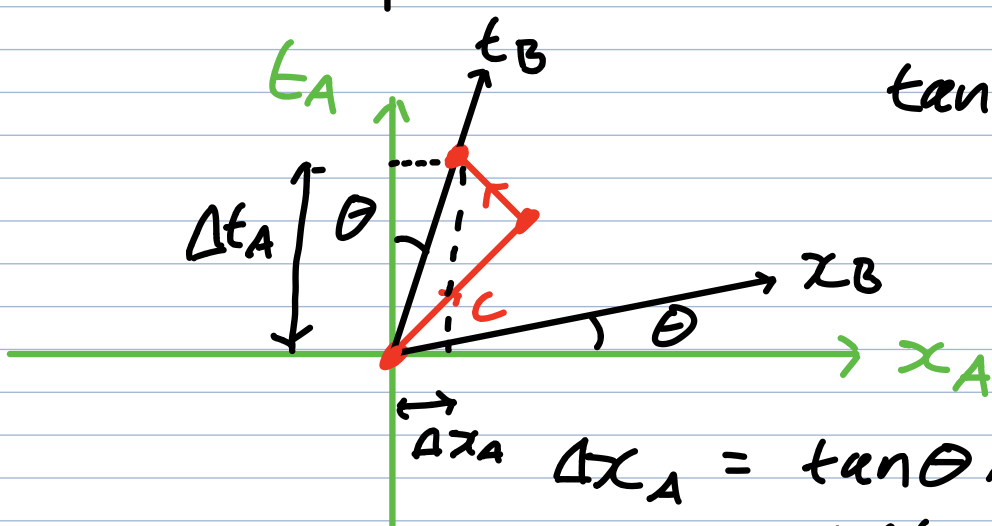


B





$$\boxed{\Delta s^2 = -\Delta t_B^2}$$



$\tan\theta = v$

$$\Delta x_A = \tan\theta \, \Delta t_A$$
$$= v \, \Delta t_A$$

$$\Delta s^2 = -\Delta t^2 + \Delta x^2$$

$$\boxed{\Delta s^2 = -\Delta t_A^2 + v^2 \Delta t_A^2}$$

$$-\Delta t_B^2 = -\Delta t_A^2 + v^2 \Delta t_A^2$$

$$\Delta t_A = \frac{1}{\sqrt{1 - v^2}} \Delta t_B$$

$$y'' - (y')^2 - 1 = 0$$

$$\frac{d}{dx}\left((y')^2\right) = 2y'y''$$

$$y'' = \frac{1}{2y'}\frac{d(y')^2}{dx}$$

$$\frac{1}{2y'}\frac{d(y')^2}{dx} - (y')^2 - 1 = 0$$

$$\frac{d(y')^2}{dx} - 2(y')^3 - y' = 0$$

$$(y')^2 = u$$

$$\frac{du}{dx} - 2u^{\frac{3}{2}} - u^{\frac{1}{2}} = 0$$

$$\frac{du}{dx} = 2u^{\frac{3}{2}} + u^{\frac{1}{2}}$$

$$\frac{du}{2u^{\frac{3}{2}} + u^{\frac{1}{2}}} = dx$$

$$\int \frac{1}{u^{\frac{1}{2}}(2u+1)}\, du = \int dx$$

$$v = u^{\frac{1}{2}}$$

$$dv = \frac{1}{2} u^{-\frac{1}{2}} du$$

$$= \frac{1}{2} \frac{1}{v} du$$

$$du = dv\ 2v$$

$$\int \frac{2\cancel{v}\, dv}{\cancel{v}(2v^2+1)} = \int dx$$

$$\int \frac{dv}{v^2 + \frac{1}{2}} = \int dx$$

$$\sqrt{2} \arctan(\sqrt{2} v) = x + C$$

$$v = \frac{1}{\sqrt{2}} \tan\left(\frac{x+C}{\sqrt{2}}\right)$$

$$(y')^2 = u \qquad v = u^{\frac{1}{2}}$$

$$(y')^2 = \frac{1}{2} \tan^2\left(\frac{x+C}{\sqrt{2}}\right)$$

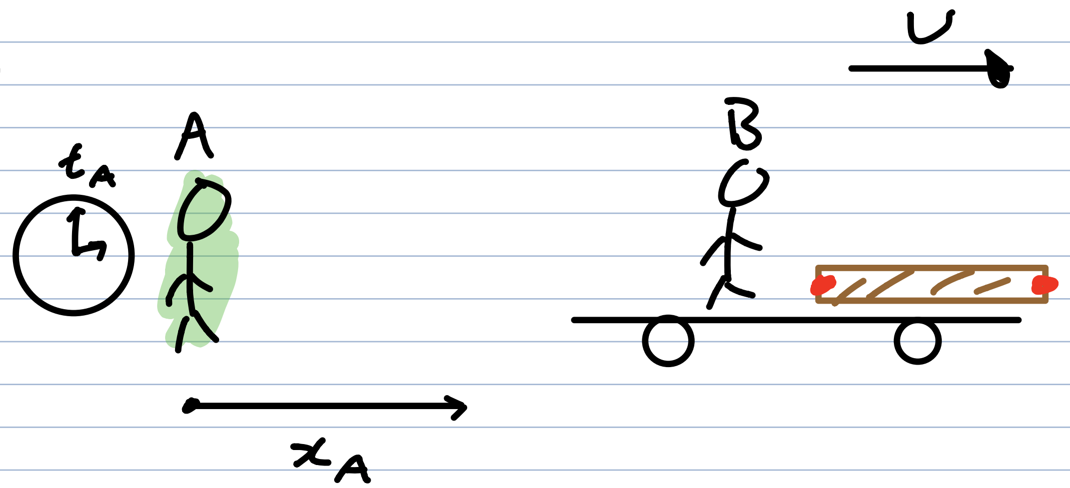
$$y' = \frac{1}{\sqrt{2}} \tan\left(\frac{x+C}{\sqrt{2}}\right)$$

$$y = \ln\left|\sec\left(\frac{x+C}{\sqrt{2}}\right)\right| + D$$

$$137$$

$$\alpha = \frac{1}{137}$$

Ⓐ



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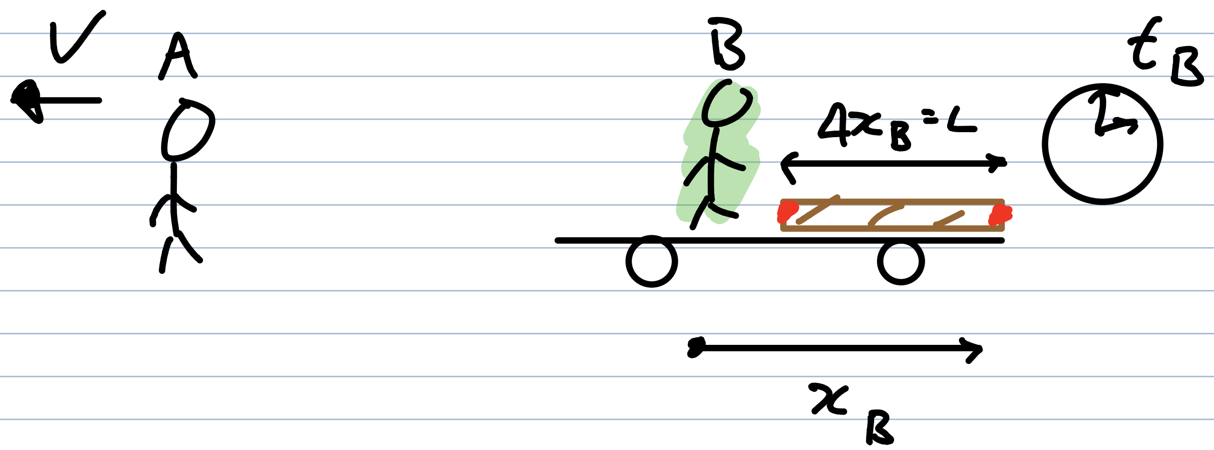
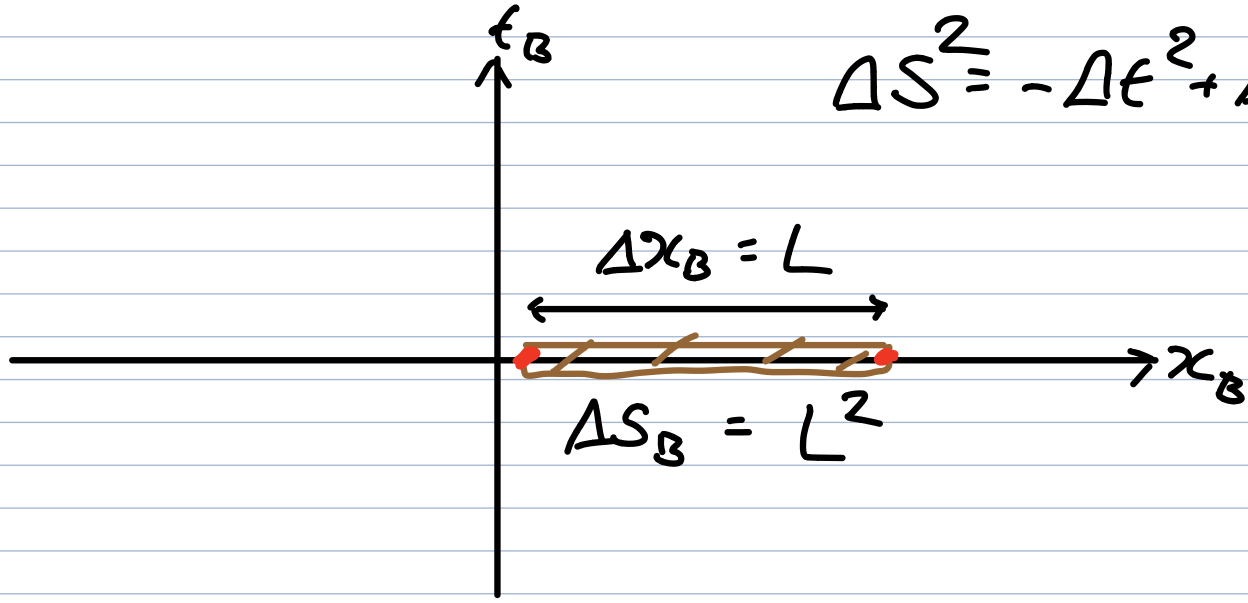
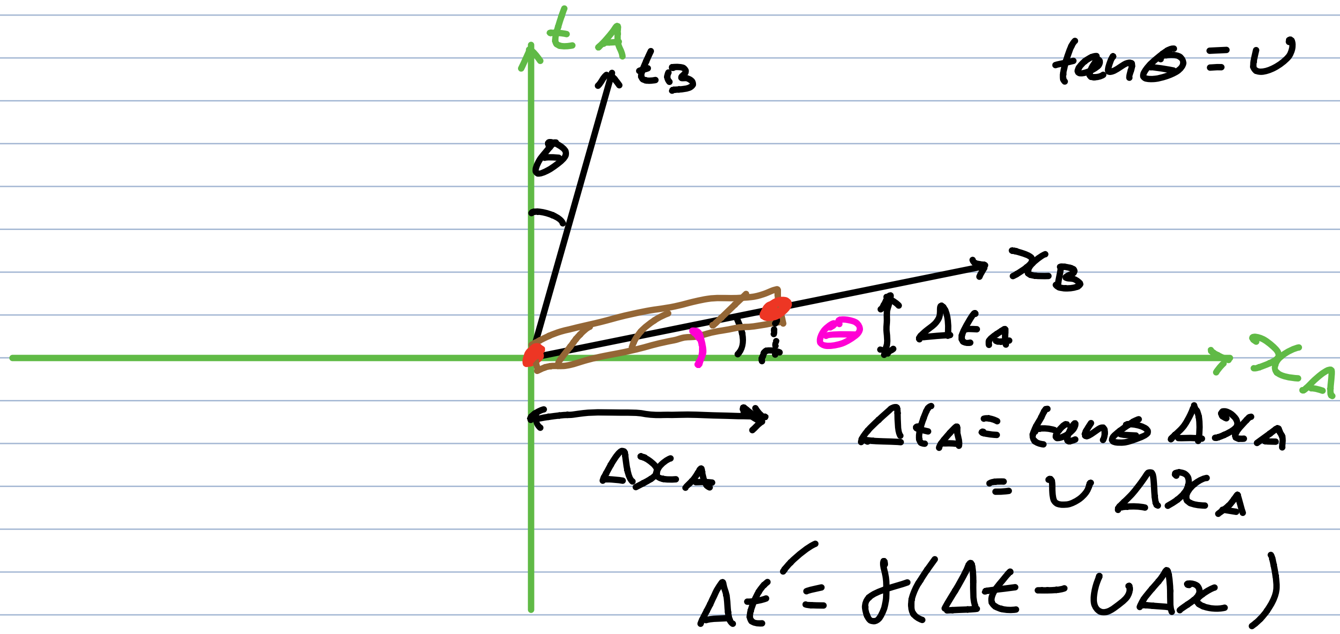




$$\Delta S^2 = -\Delta t^2 + \Delta x^2$$



$\tan\theta = v$

$$\Delta t_A = \tan\theta \, \Delta x_A = v \, \Delta x_A$$

$$\Delta t' = \gamma(\Delta t - v\Delta x)$$

$$\Delta S^2 = -\Delta t_A^2 + \Delta x_A^2 = -v^2 \Delta x_A^2 + \Delta x_A^2 = \Delta x_A^2 (1 - v^2)$$

Made Error!

fix Next time

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