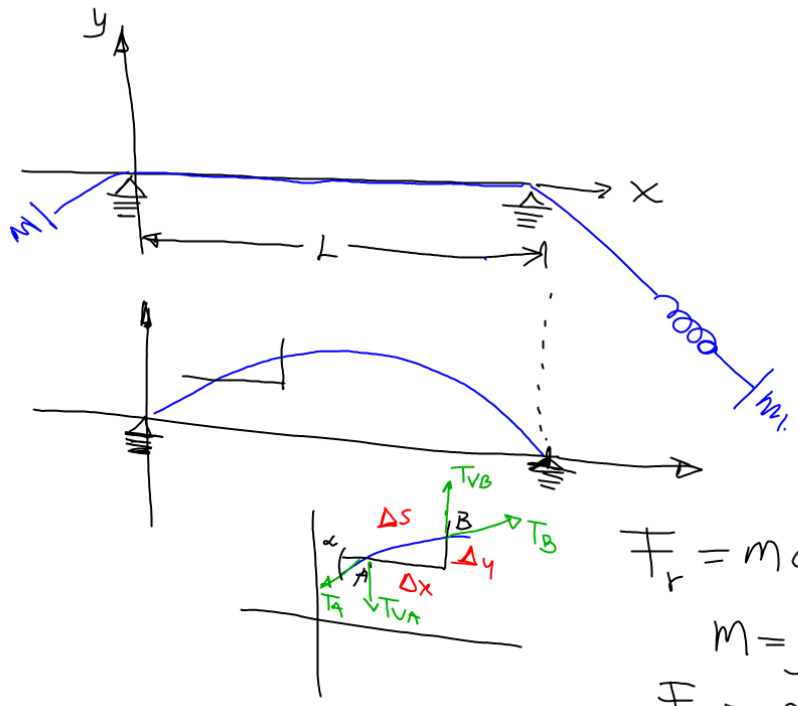
SEGUNDO EXAMEN PARCIAL

(NO ES COLEGIADO)

Jueves 21 MAYO a las 11:00

EN LOS Salones J205A & J205B.



$$\sum F_r = ma$$

$$m = \rho \Delta s$$

$$F_r = \rho \Delta s \frac{d^2u}{dt^2}$$

$$F_r = T_{VB} - T_{VA}$$

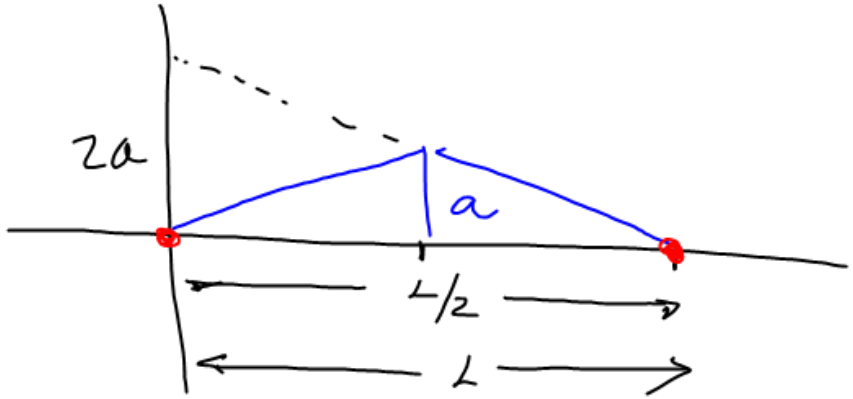
$$T_{VA} = T \operatorname{sen}(\alpha) \doteq T \frac{\Delta u}{\Delta x}$$

$$T_{VB} = T \frac{\Delta u}{\Delta x} + \frac{\partial}{\partial x}\left(T \frac{\partial u}{\partial x}\right)\Delta x$$

$$T \frac{\partial^2 u}{\partial x^2} \Delta x = \rho \Delta s \frac{\partial^2 u}{\partial t^2}$$

$$\boxed{\frac{\partial^2 u}{\partial x^2} = \frac{\rho}{T} \frac{\partial^2 u}{\partial t^2}}$$

$$\frac{\partial^2 u}{\partial x^2} = c^2 \frac{\partial^2 u}{\partial t^2}$$



Condiciones frontera

$y(0,t)=0$ $\qquad$ $y(\ell,t)=0$

condición inicial

$$\begin{cases} y(x,0) = \begin{cases} \frac{2a}{\ell}x \; ; \; 0 \le x \le \ell/2 \\ 2a - \frac{2a}{\ell}x \; ; \; \ell/2 < x \le \ell \end{cases} \\ \left.\frac{\partial y}{\partial t}\right|_{t=0} = 0 \end{cases}$$