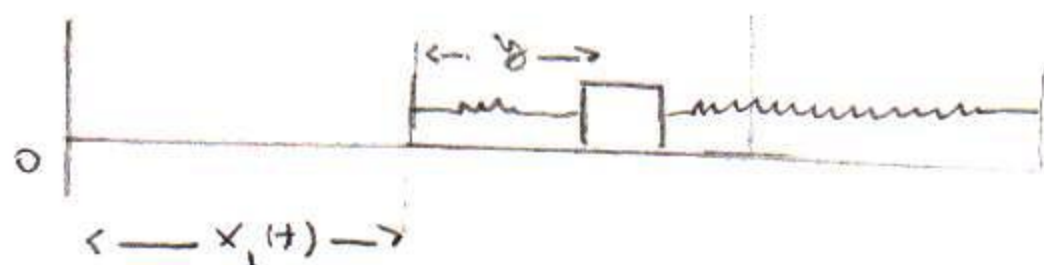


Ejercicio 3



$$x_1(t) = A \cos(\omega t)$$

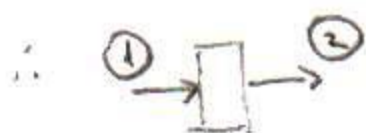
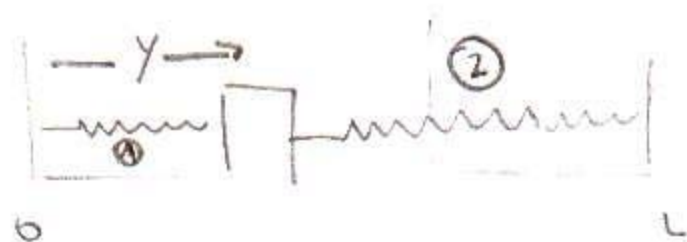
→ Ley de Newton:

$$\vec{F} = m \ddot{x}$$

$$/ \quad x(t) = x_1(t) + y(t)$$

$$F = m \ddot{x}_1(t) + m \ddot{y}$$

→ D.C.L



$$F_1 = k \left(\frac{L}{2} - y \right)$$

$$F_2 = k \left(L - y - \frac{L}{2} \right) = k \left(\frac{L}{2} - y \right)$$

→ FINALMENTE

$$F = F_1 + F_2 = m \ddot{x}_1(t) + m \ddot{y}(t)$$

$$2k \left(\frac{L}{2} - y(t) \right) = m \ddot{x}_1(t) + m \ddot{y}(t)$$

$$/ \quad \ddot{x} = -A\omega^2 \cos(\omega t)$$

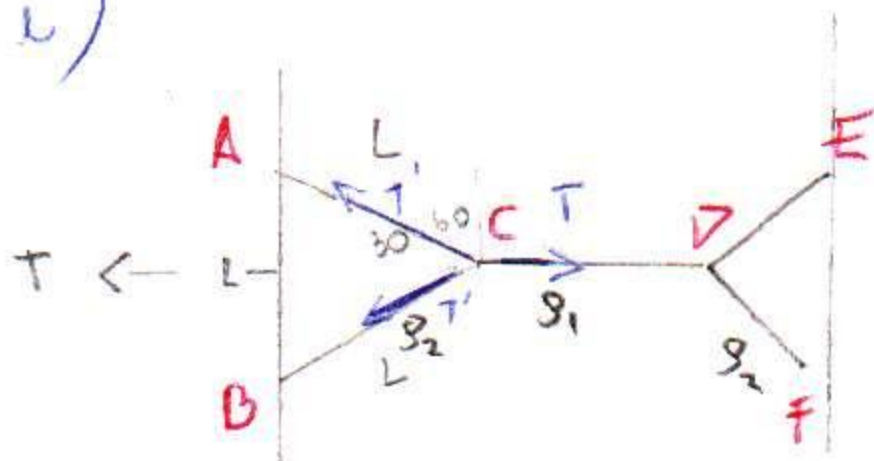
$$kL - m \ddot{x}_1(t) = m \ddot{y}(t) + 2k y(t)$$

Ejercicio 5

$1.0 + 3.0 + 3.0 \rightarrow$ cálculo del tiempo

camino que demora menos t^0

i)



$$v^2 = \frac{T}{\rho} \quad ; \quad \rho_2 < \rho_1$$

$$v_{BC} > v_{AC} \quad ; \quad v_{DF} > v_{DE}$$

\therefore CAMINO MÁS RÁPIDO B C D F

ii) y: $T' \cos 60 - T' \cos 60 = 0$

x: $T' \cos 30 + T' \cos 30 - T = 0$

CONDICIONES DE EQUILIBRIO

$$T' = + \frac{T}{\sqrt{3}}$$

LUEGO $Tiempo_i = L/v_i$

$$T^0 = T_{BC} + T_{CD} + T_{DF} = L \left\{ 2 \sqrt{\frac{\rho_2 \sqrt{3}}{T}} + \sqrt{\frac{\rho_1}{T}} \right\}$$

$$= \frac{L}{\sqrt{T}} \left\{ 2 \sqrt{\rho_2 \sqrt{3}} + \sqrt{\rho_1} \right\}$$