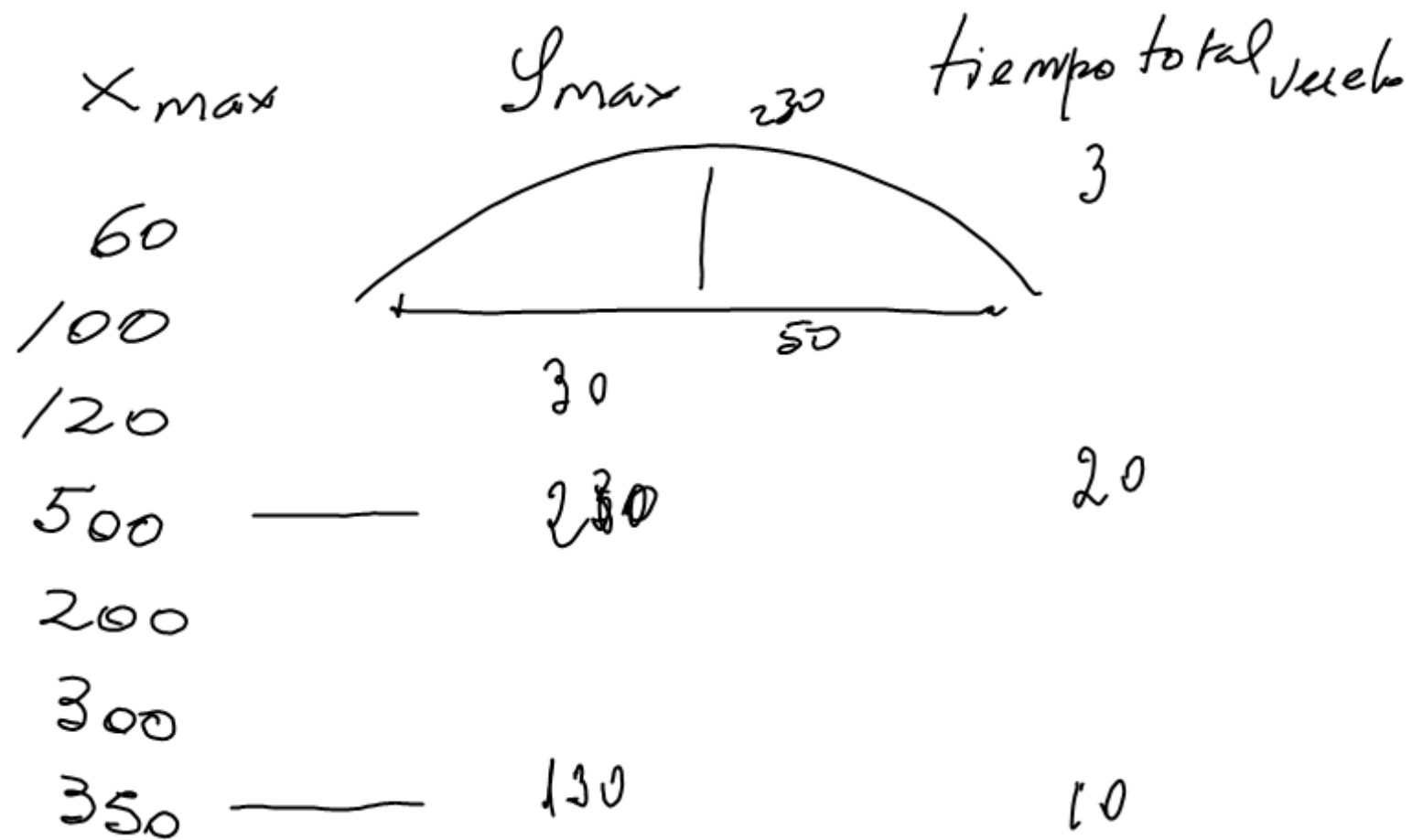


Ecuación Diferencial Ordinaria LINEAL

$$a_0(x) \frac{d^2 y}{dx^2} + a_1(x) \frac{d^{n-1} y}{dx^{n-1}} + \dots + a_{n-1}(x) \frac{dy}{dx} + a_n(x) y = Q(x)$$

PROBLEMA ARCO y FLECHA.

MECÁNICA: CINEMÁTICA y DINÁMICA.



comprimento flecha $l = 0.66 \text{ [m]}$
 peso flecha $w = 0.020 \text{ [kg]}$

$$k = \frac{19.220 \text{ kg}}{0.50 \text{ [m]}}$$

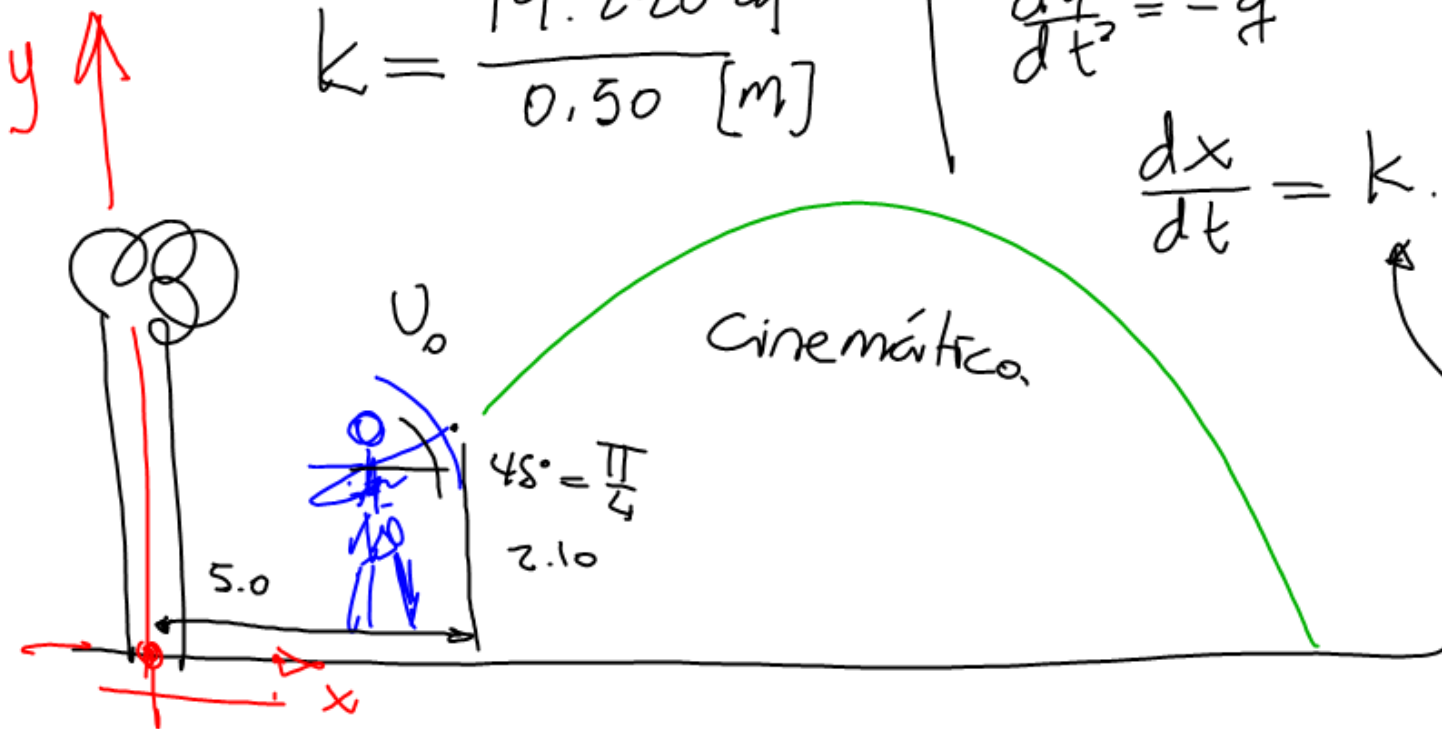
$$\frac{d^2 y}{dt^2} = -g$$

$$\frac{dx}{dt} = k$$

$$t=0 \quad \begin{cases} y_0(0) = 2.10 \\ y'_0(0) = V_0 \sin\left(\frac{\pi}{4}\right) \end{cases}$$

$$\begin{cases} x_0(0) = 5.0 \end{cases}$$

$$V_0 \cos\left(\frac{\pi}{4}\right)$$



Ley de Hooke.

$$M \frac{d^2 s}{dt^2} = -Hs$$

$$M \frac{d^2 s}{dt^2} + Hs = 0$$



$$9 \times 0.0254 = 0.2285 \text{ [m]}$$

$$\frac{0.66}{0.23} = 0.43 \text{ [m]}$$

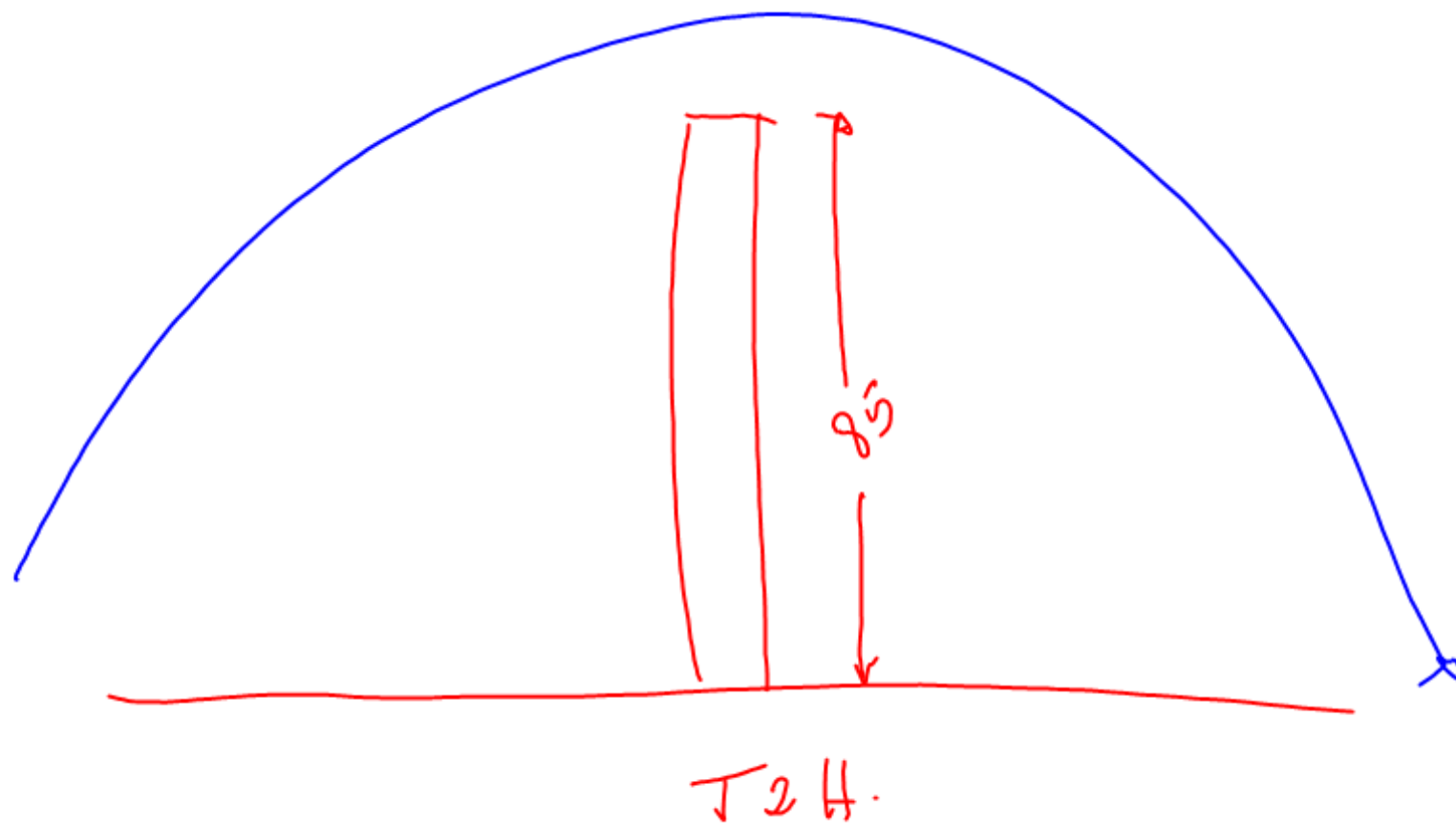
$$s(0) = -0.43 \text{ [m]}$$

$$s'(0) = 0$$

$$H = \frac{19.220 \text{ kg}}{0.50 \text{ m}}$$

$$M = \frac{0.020 \text{ kg}}{9.8 \frac{\text{m}}{\text{s}^2}}$$

$$60 \frac{\cancel{\text{m}}}{\cancel{\text{s}}} \times 3600 \frac{\cancel{\text{s}}}{\cancel{\text{h}}} \times \frac{1}{1000} \text{ [km]}$$



$$Hooke = \frac{19.22 \frac{kg}{m}}{0.5} \longrightarrow q'' = 0.228 \{m\}$$

	Largo	peso
2	0.77 [m]	0.028 [kg]
3	0.62 [m]	0.013 ✓
4	0.66 [m]	0.020 ✓
5	0.62 [m]	0.014 ✓
6	0.62 [m]	0.020 ✓
7	0.67 [m]	0.026 ✓

$$y = c_1 y_1 + c_2 y_2$$

$$y_p = 3y_1 + 4y_2$$

$$y = 3y_3$$