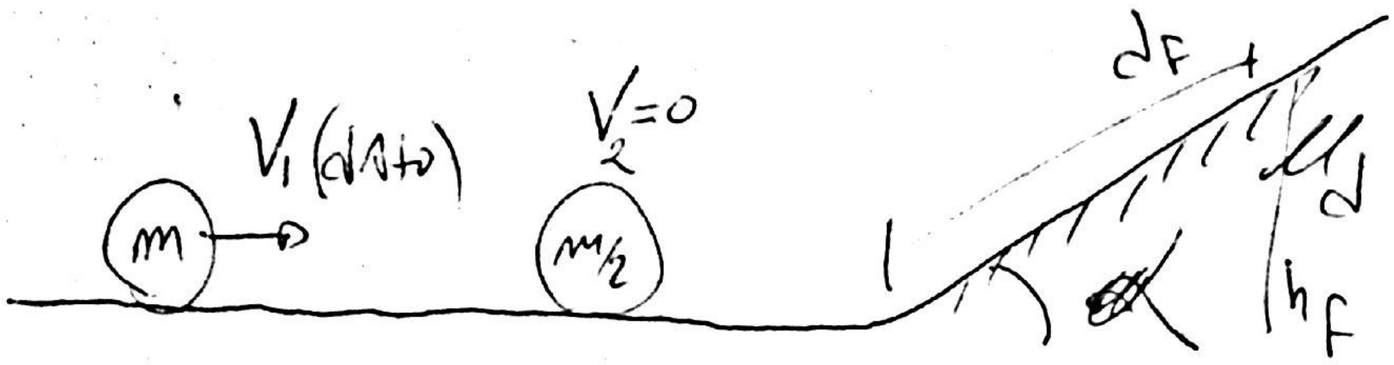

$$d_f \, S(\alpha) = h_f$$

Choque ELASTICO : a) V_1' y $V_2' = ?$

b) h_{MAX} de CADA MASA ?

a)
$$m V_1 = m V_1' + \frac{m}{2} V_2'$$
$$m V_1^2 = m (V_1')^2 + \frac{m}{2} (V_2')^2$$

$$\Rightarrow \boxed{V_2' = 2 (V_1 - V_1')}$$

$$\Rightarrow V_1^2 = V_1'^2 + 2 (V_1 - V_1')^2 \Rightarrow$$

$$\boxed{(a^2 - b^2) = (a+b)(a-b)}$$

$$\Rightarrow (V_1^2 - V_1'^2) = 2 (V_1 - V_1')^2 \Rightarrow$$

$$\Rightarrow V_1 + V_1' = 2 (V_1 - V_1') \Rightarrow$$

$$\Rightarrow 3 V_1' = V_1 \Rightarrow$$

$$\Rightarrow \boxed{V_1' = V_1/3} \; ; \; \boxed{V_2' = \frac{4}{3} V_1}$$

b) CADA MASA "M" tiene velc. "V_0" inicial :

$$\frac{M}{2} V_0^2 = M g h_f - \mu_d M g \cos\alpha \, \frac{h_f}{S\alpha} \Rightarrow$$

$$\Rightarrow \boxed{h_f = \frac{V_0^2}{2g} \Big/ \left[1 - \mu_d / tg(\alpha)\right]}$$

$$\Rightarrow \boxed{\frac{h_{f(m/2)}}{h_{f(m)}} = \frac{(4/3)^2}{(1/3)^2} = 16}$$