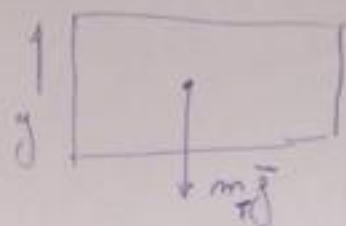


Superfície Plana Larga $\Rightarrow m_T = 1350 \text{ kg}$ ($m_c + m_p$)

①



Primeiro eixo livre: $\tilde{a} = -g$

$$\tilde{v}(t) = -gt + A$$

$$\tilde{x}(t) = -\frac{g}{2}t^2 + At + B$$

Sfz. C1: $\bullet \tilde{x}(t) = 0$ (Plata larga) $\Rightarrow \boxed{B=0}$

$\bullet \tilde{v}(t=0) = 0$ (Se não se mexeu) $\Rightarrow \boxed{A=0}$

Em $t = 0,8 \Rightarrow \bullet \tilde{v} = -7,84 \text{ m/s} = v_0$ ②

$\bullet \tilde{x}(t=0,8) = -3,136 \text{ m}$ ③

$\tilde{v} = v_0$

$= x_0$

Novos condições
Livre, ($t=0$) Não se mexeu.

①

$Q_0 = 0$ (Amoça com $F=0$)

Sfz. Aceleração de Frenada livre:

$$\tilde{a}_F = At + B$$

$$\tilde{v}_F = \frac{At^2}{2} + Bt + C$$

$$\tilde{x}_F = \frac{At^3}{6} + \frac{Bt^2}{2} + Ct + D$$

$t_{\text{frenada}} = ?$

C. Frenada: $\tilde{x}_F = 0$ (Não se mexeu)
 $\tilde{v}_F = 0$

$$a_F = g \Rightarrow [\tilde{F} = 0]$$

$$-mg + m a_F = 0$$

$$[a_F = g]$$

$$\boxed{B=0} \quad ①$$

$$\boxed{C = -7,84 \text{ m/s}} \quad ②$$

$$\boxed{D = -3,136 \text{ m}} \quad ③$$

$$v(t_F) = 0 = \frac{A}{2} t_F^2 - 7,84$$

$$a(t_F) = g = A t_F \Rightarrow A = g/t_F$$

$$\Rightarrow \frac{g}{2t_F} t_F^2 - 7,84 = 0$$

$$t_F = \frac{7,84 \cdot 2}{g} = 1,6 \text{ s}$$

$$A = g/t_F = 9,8/1,6 = 6,125$$

$$\tilde{a}_F(t) = 6,125 t$$

$$3,0625$$

$$\tilde{v}_F(t) = 3,0625 t^2 - 7,84 \text{ m/s}$$

$$1,0208$$

$$\tilde{x}_F(t) = 1,0208 t^3 - 7,84 t - 3,136 \text{ m}$$

$$\tilde{x}_F(t=1,6 \text{ s}) = -11,429 \text{ m}$$

$$\tilde{x}_F(t) = 1,0208 t^3 - 7,84 t - 3,136 \text{ m}$$

$$\tilde{v}_F(t) = 3,0625 t^2 - 7,84$$

$$t_F = 1,6 \text{ s}$$

$$\tilde{a}_F = 6,125 t$$