$$I_1 = \int_{-d_1}^{0} (m_1 t + b_1)^2 dt$$

$$(m_1 t + b_1)^2 = m_1^2 t^2 + 2 m_1 b_1 t + b_1^2$$

$$I_1 = \left[\frac{m_1^2 t^3}{3} + m_1 b_1 t^2 + b_1^2 t\right]_{-d_1}^{0}$$

$t=0 \quad t=-d_1$

$$0 - \left(\frac{m_1^2 (-d_1)^3}{3} + m_1 b_1 (-d_1)^2 + b_1^2(-d_1)\right)$$

$$I_1 = -\left(-\frac{m_1^2 d_1^3}{3} + m_1 b_1 d_1^2 - b_1^2 d_1\right)$$

$$I_1 = \frac{m_1^2 d_1^3}{3} - m_1 b_1 d_1^2 + b_1^2 d_1$$

$$I_2 = \int_{0}^{d_2} (m_2 t + b_2)^2 dt$$

$$(m_2 t + b_2)^2 = m_2^2 t^2 + 2 m_2 b_2 t + b_2^2$$

$$I_2 = \left[\frac{m_2^2 t^3}{3} + m_2 b_2 t^2 + b_2^2 t\right]_{0}^{d_2}$$

$t = d_2 \quad t=0$

$$\left(\frac{m_2^2 (d_2)^3}{3} + m_2 b_2 (d_2)^2 + b_2^2 (d_2)\right)$$

$$I_2 = \left(\frac{m_2^2 d_2^3}{3} + m_2 b_2 d_2^2 + b_2^2 d_2\right) - 0$$

$$I_2 \quad \frac{m_2^2 d_2^3}{3} + m_2 b_2 d_2^2 + b_2^2 d_2$$

$$P_x = \frac{1}{T}\left[\frac{m_1^2 d_1^3}{3} - m_1 b_1 d_1^2 + b_1^2 d_1 + \frac{m_2^2 d_2^3}{3} + m_2 b_2 d_2^2 + b_2^2 d_2\right]$$

$d_1 = d_2 = d \rightarrow 2d$

- $m_1 = \frac{A}{d} \quad b_1 = A \quad \begin{cases} t = -d & 0 \\ t = 0 & A \end{cases}$

$$m_1 = \frac{A-0}{0-(-d)} = \frac{A}{d}$$

$$y = \frac{A}{d} t + A \quad t \in [-d, 0]$$

En $t = -d$: $\quad y = -A + A = 0$

$m_1 = \frac{A}{d}, \quad b_1 = A \quad d_1 = d$

$$I_1 = \frac{(A/d)^2 d^3}{3} - (A/d)(A)d^2 + A^2 d$$

$$= \frac{A^2 d}{3} - A^2 d + A^2 d$$

$$= \frac{A^2 d}{3}$$

- $m_2 = -\frac{A}{d} \quad b_2 = A \quad \begin{cases} t = 0 & A \\ t = d & 0 \end{cases}$

$$m_2 = \frac{0-A}{d-0} = -\frac{A}{d}$$

$$y = -\frac{A}{d} t + A$$

$m_2 = -\frac{A}{d}, \quad b_2 = A, \quad d_2 = d$

$$I_2 = \frac{(A/d)^2 d^3}{3} + (-A/d)(A)d^2 + A^2 d$$

$$= \frac{A^2 d}{3} - A^2 d + A^2 d$$

$$= \frac{A^2 d}{3}$$

Si $T = 2d$

$$P_x = \frac{1}{2d} \cdot \frac{2A^2 d}{3} = \frac{A^2}{3}$$

$$x(t) = \begin{cases} m_1 t + b_1, & t \in [-d_1, 0] \\ m_2 t + b_2, & t \in [0, d_1], \\ 0, & \text{fuera de } [-d_1, d_1]. \end{cases}$$

Calcub de C_0 (coeFiciente DC)

Por definición

$$C_0 = \frac{1}{T}\left(\int_{-d_1}^{0} (m_1 t + b_1)dt + \int_{0}^{d_1} (m_2 t + b_2)\, dt\right)$$

$$I_1: \int (m_1 t + b_1) dt = \frac{m_1 t^2}{2} + b_1 t,$$

$$I_1: \left[\frac{m_1}{2} t^2 + b_1 t\right]_{-d_1}^{0} = 0 - \left(\frac{m_1}{2}(-d_1)^2 + b_1(-d_1)\right) = -\frac{m_1 d_1^2}{2} + b_1 d_1.$$

$$I_2: \left[\frac{m_2}{2} t^2 + b_2 t\right]_{0}^{d_1} = \frac{m_2}{2} d_1^2 + b_2 d_1.$$

$$\int_{-d_1}^{d_1} x(t)\, dt = I_1 + I_2 = \left(-\frac{m_1}{2} d_1^2 + b_1 d_1\right) + \left(\frac{m_2}{2} d_1^2 + b_2 d_1\right)$$

$$C_0 = \frac{1}{T}\left(\frac{m_2 - m_1}{2} d_1^2 + (b_1 + b_2) d_1\right)$$

B en $t = 0$:

$m_1 = \frac{B}{d_1}$ $\quad b_1 = B$ $\quad m_2 = -\frac{B}{d_1}$ $\quad b_2 = B.$

$$\frac{m_2 - m_1}{2} d_1^2 = \frac{-\frac{B}{d_1} - \frac{B}{d_1}}{2} d_1^2 = -B d_1, \qquad (b_1 + b_2) d_1 = 2B d_1,$$

$$C_0 = \frac{1}{T}(-B d_1 + 2B d_1) = \frac{B d_1}{T}. \qquad T = 2d_1$$

$$\frac{B d_1}{2 d_1} = \frac{B}{2}$$